Chapter 2
Proposed Action and Alternatives

This chapter describes Tongue River Railroad Company's (TRRC) proposed action for the Tongue River Railroad. The Surface Transportation Board's (Board) Office of Environmental Analysis (OEA) developed and analyzed a reasonable range of alternatives, including a no-action alternative, for analysis in this Draft Environmental Impact Statement (EIS).

TRRC filed an application with the Board to construct and operate a new rail line in southeastern Montana. The proposed action is the approval of the construction and operation of a rail line to transport low-sulfur, subbituminous coal from mine sites to be developed in Rosebud and Powder River Counties, Montana, including the proposed Otter Creek Mine. TRRC would construct and BNSF Railway Company (BNSF) would operate a single-track rail line to mine sites to be developed in Rosebud and Powder River Counties, Montana, including the proposed Otter Creek Mine. TRRC stated that train traffic on the rail line would likely consist of 26 round trips per week or 7.4 trains per day (3.7 in each direction), shipping approximately 20 million tons of coal annually.

After considering multiple alternatives, OEA decided to analyze the environmental impacts of five different railroad routes—referred to as build alternatives—for this Draft EIS. OEA also examined the No-Action Alternative. Each build alternative could be modified by a variation segment, resulting in 10 point-to-point build alternatives. All of these build alternatives would connect two terminus points south of Ashland, Montana to an existing BNSF rail line. Route details for the build alternatives can be found in Section 2.1.3.2, *Build Alternatives*.

This chapter first describes the development and examination of different routes that would meet the purpose and need of the proposed project (Section 2.1, *Alternatives*). The build alternatives are described with respect to route (Section 2.1.3, *Alternatives Selected for Detailed Study*), construction (Section 2.2, *Proposed Rail Line Construction*), and operation requirements (Section 2.3, *Proposed Rail Line Operation*). This chapter then summarizes and compares anticipated environmental impacts of the build alternatives and the No-Action Alternative (Section 2.4, *Comparison of Alternatives*).

2.1 Alternatives

2.1.1 Alternatives Development

TRRC's revised application, submitted on October 16, 2012, proposed the construction and operation of an approximately 83-mile rail line between Miles City and Ashland/Otter Creek,

Montana. That proposed rail line would follow the alignment for the TRRC rail line that was approved by the Interstate Commerce Commission (ICC) in 1986 with some modification. In response to TRRC's revised application, OEA identified alternatives to TRRC's proposal and evaluated each alternative to determine if it was reasonable and feasible (both economically and technically) and met the purpose and need for the project. TRRC then submitted a supplemental application on December 17, 2012, which proposed the construction and operation of a different alternative under OEA's consideration—the shorter Colstrip Alternative—as TRRC's preferred alternative. This section summarizes OEA's development, screening, and review of various alternatives.

2.1.1.1 Alternatives Considered from Tongue River I

At the beginning of scoping, OEA reviewed alternatives that were analyzed in detail in the 1980s in the Tongue River I proceeding. These alternatives included the Tongue River, Colstrip, Tongue River Road, and Moon Creek Alternatives. TRRC's October 2012 revised application made minor refinements to the Tongue River Alternative from Tongue River I, as approved by the Board in 1986. OEA evaluated this refined Tongue River Alternative as well as the Colstrip, Tongue River Road, and Moon Creek Alternatives and determined that they were reasonable and feasible and met the purpose and need for the proposed project. The Board included these alternatives, along with a no-action alternative, in the *Draft Scope of Study* published on October 22, 2012 (77 *Federal Register* [Fed. Reg.] 64592).

OEA also revisited alternatives that were eliminated from detailed study in the Tongue River I EIS, including both rail and nonrail alternatives. OEA determined that the issues that had eliminated them from further study, such as challenging grades or large amounts of cut and fill (in the case of rail alternatives), or technological feasibility, economic competitiveness, and comparatively greater environmental impacts (in the case of the nonrail alternatives) were still valid. Therefore, OEA did not analyze these alternatives in this Draft EIS.

2.1.1.2 Alternatives Considered during Scoping

OEA conducted 10 public scoping meetings in November 2012, to provide information about and receive comments on the proposed rail line and the build alternatives identified in the *Draft Scope of Study*.[1] OEA solicited and received feedback from agencies, tribes, and the public on the alternatives. OEA sought ideas for alternatives that could reduce potential environmental impacts or that addressed concerns raised by commenters. During the scoping process, OEA received additional suggested alternatives and route variations.

In addition, OEA used topographic data and other environmental information to attempt to identify other reasonable and feasible alternatives that could meet the purpose and need of the proposed project and provide environmental benefits over alternatives identified during scoping. However, OEA did not independently identify any new reasonable and feasible

[1] See Chapter 1, Section 1.6.1, *Scoping Notice and Public Meetings*, for details on the scoping meetings held, number of participants, and volume of comments received.

alternatives to be considered. Topography was the most consequential constraining factor. The area topography was analyzed to determine routes that were not too steep and that would minimize the need for bridges.[2] This limited feasible routes to those located in natural corridors with rangeland, valleys, plateaus, and other generally flat areas of a consistent grade. The overall length of a build alternative was also a constraining factor because increased length generally results in higher construction costs, increased land acquisition or disturbance, more landowners affected, and a higher potential for environmental impacts.

2.1.1.3 Modification to the Colstrip Alternative Originally Proposed by TRRC

In its December 17, 2012 supplemental application, TRRC identified a slightly revised Colstrip Alternative as its preferred alternative. TRRC's preferred alternative is similar to the Colstrip Alternative considered in the Tongue River I proceeding and included in the *Draft Scope of Study*, with minor modifications. This modified Colstrip Alternative generally parallels Greenleaf Road (S-447) rather than following Roe and Cooper Creek.[3]

2.1.1.4 Alternatives Included in the *Final Scope of Study*

On March 22, 2013, OEA issued the *Final Scope of Study* (78 Fed. Reg. 17752), which identified five alternatives that would be studied in this Draft EIS.[4]

- Tongue River Alternative
- Colstrip Alternative
- Tongue River Road Alternative
- Moon Creek Alternative
- No-Action Alternative

OEA also identified two alternatives (Decker 1 and Decker 2) and two variation segments (Ashland East Variation and Terminus 1 Variation) for consideration based on comments received during scoping. Variations are short segments of rail alignments that could be used to replace segments of an alternative.

Since the issuance of the *Final Scope of Study*, OEA combined Decker 1 and Decker 2 into one alternative. This revised alternative, included in this Draft EIS as the Decker Alternative, is generally identical to the alignment from Ashland to Decker, Montana that

[2] Hilly terrain requires more cut and fill than flatter terrain. Steep terrain requires significant earthwork so that trains can operate efficiently.

[3] On January 17, 2014, TRRC filed an Applicant Preferred Alternative Revision Memorandum with the Board that identified design revisions to the Colstrip Alternative. The refined Colstrip Alternative design submitted by TRRC is carried forward for analysis in this Draft EIS and is described in detail in Section 2.1.3.2, *Build Alternatives*.

[4] The alternatives from the *Final Scope of Study* were later revised and refined into the alternatives selected for detailed study. See Section 2.1.3, *Alternatives Selected for Detailed Study*, for detailed descriptions and figures pertaining to these alternatives.

was approved in Tongue River III[5] except that it would avoid the Wolf Mountains Battlefield National Historic Landmark (see Chapter 1, Section 1.2, *Background,* for a description of the Tongue River III proceeding). OEA determined that the Decker Alternative as well as the Ashland East and Terminus 1 Variation segments (as applied to the build alternatives) would be carried forward for detailed study in this Draft EIS. The Colstrip Alternative also has been slightly revised since the issuance of the *Final Scope of Study,* as described above.

2.1.2 Alternatives Considered but Not Included for Detailed Study

OEA determined that the following alternatives were not reasonable and feasible and would not be carried forward for detailed analysis in this Draft EIS.

2.1.2.1 Highway 212 to Highway 59 to Gillette Alternative

This route was developed in response to a scoping comment requesting that OEA consider an alternative that would transport the coal east by rail along Highway 212 through Custer National Forest, before turning south at Highway 59 and connecting to the existing rail line near Gillette, Wyoming. The total length of this route would be approximately 138 miles, or 60.5 percent longer than the longest alternative included for detailed study (Tongue River East Alternative). OEA determined that this would not be a reasonable and feasible alternative based on the undulating terrain, the excessive length, the drastic changes in elevation, the amount of earthwork required, and the environmental impacts (including impacts on Custer National Forest) that would be associated with this significantly longer route.

2.1.2.2 Otter Creek Alternative

This route was developed in response to a scoping comment requesting that OEA consider an alternative that would follow Otter Creek south and connect with the existing BNSF main line between Sheridan and Gillette, Wyoming. The route would run south for approximately 40 miles, following the Otter Creek drainage through Custer National Forest to the Montana-Wyoming border, where it would turn southwest and continue for approximately 30 miles before reaching the existing BNSF main line near the town of Clearmont, Wyoming. OEA determined that this would not be a reasonable and feasible alternative based on the impacts on Custer National Forest, elevation changes, steep grade, and the amount of earthwork required.

[5] Tongue River R.R.—Rail Constr. and Operation—Ashland to Decker, Mont. (Tongue River III), FD 30186 (SubNo. 3) (STB served Oct. 9, 2007), pet. for reconsid. denied (STB served Mar. 13, 2008).

2.1.2.3 Decker 1 Alternative

This route was developed in response to multiple scoping comments requesting that OEA consider an alternative that would transport the coal south to the existing rail line near Decker. Identified as the Decker 1 Alternative in the *Final Scope of Study*, this alternative is identical to the alignment from Ashland to Decker that was approved in Tongue River III. This alternative would depart from the proposed Otter Creek Mine site and follow Otter Creek north for approximately 5 miles. It would then travel southwest along the eastern side of the Tongue River, crossing through approximately 2 miles of the Wolf Mountains Battlefield National Historic Landmark. From there it would cross to the west side of the Tongue River, generally following the river valley, and continue to its connection with the BNSF rail line via the Spring Creek rail spur near Decker. OEA determined that this route would not be a reasonable and feasible alternative because of the direct impact it would have on the Wolf Mountains Battlefield National Historic Landmark. OEA developed a revised version of the Decker Alternative by combining portions of the Decker 1 and Decker 2 Alternatives in order to avoid the National Historic Landmark. This alternative, referred to as the Decker Alternative, was considered reasonable and feasible and has been carried forward for detailed analysis (Section 2.1.3.2, *Build Alternatives*).

2.1.2.4 Decker 2 Alternative

This route was developed in response to scoping comments requesting that OEA consider another southern alternative that would avoid the Wolf Mountains Battlefield National Historic Landmark. Identified as the Decker 2 Alternative in the *Final Scope of Study*, this alternative would be similar to the Decker 1 Alternative but would cross from the east to the west side of the Tongue River just north of Birney, Montana. It would pass north and west of the Wolf Mountains Battlefield National Historic Landmark, coming within 2,000 feet at its closest point and, with the exception of a short segment 3 miles north of the Tongue River Dam, would continue on the west side of the Tongue River for the remainder of its course. OEA determined that this route would not be reasonable or feasible because of its additional crossings of the Tongue River and significantly higher design costs. As described for the Decker 1 Alternative, OEA developed a revised version, the Decker Alternative (Section 2.1.3.2, *Build Alternatives*), which was considered reasonable and feasible and has been carried forward for detailed analysis.

2.1.3 Alternatives Selected for Detailed Study

As noted, OEA identified five build alternatives and two variation segments for detailed study in this Draft EIS. Because the two variation segments are related and connected to each other, they combine to replace one segment of each build alternative (Section 2.1.3.1, *Eastern Variation*). The paired alternatives[6] produced 10 point-to-point build alternatives

[6] Each pair of alternatives consists of the primary route and the primary route with the Eastern Variation. For example, the Tongue River Alternatives include both the Tongue River Alternative and the Tongue River East Alternative.

that were carried forward for analysis. OEA also analyzed the No-Action Alternative, under which the Board would deny the application and no rail line would be built. Table 2-1 presents the 11 alternatives studied in detail and indicates where the variations would combine with a primary route to form an independent build alternative. The build alternatives are represented in Figures 2-1 through 2-5.

Table 2-1. Alternatives: Route and Variation Combinations

Alternative	Primary Route and Variation Combinations
Tongue River	Tongue River Alternative
Tongue River East	Tongue River Alternative + Eastern Variation[7]
Colstrip	Colstrip Alternative
Colstrip East	Colstrip Alternative + Eastern Variation
Tongue River Road	Tongue River Road Alternative
Tongue River Road East	Tongue River Road Alternative + Eastern Variation
Moon Creek	Moon Creek Alternative
Moon Creek East	Moon Creek Alternative + Eastern Variation
Decker	Decker Alternative
Decker East	Decker Alternative + Terminus 1 Variation segment only[8]
No-Action Alternative	N/A

[7] The Eastern Variation includes both the Ashland East Variation segment and the Terminus 1 Variation segment, as explained in Section 2.1.3.1, *Eastern Variation.*

[8] Because the Decker Alternatives would travel south toward Decker, Montana, only the Terminus 1 Variation segment can be applied, not the entire Eastern Variation.

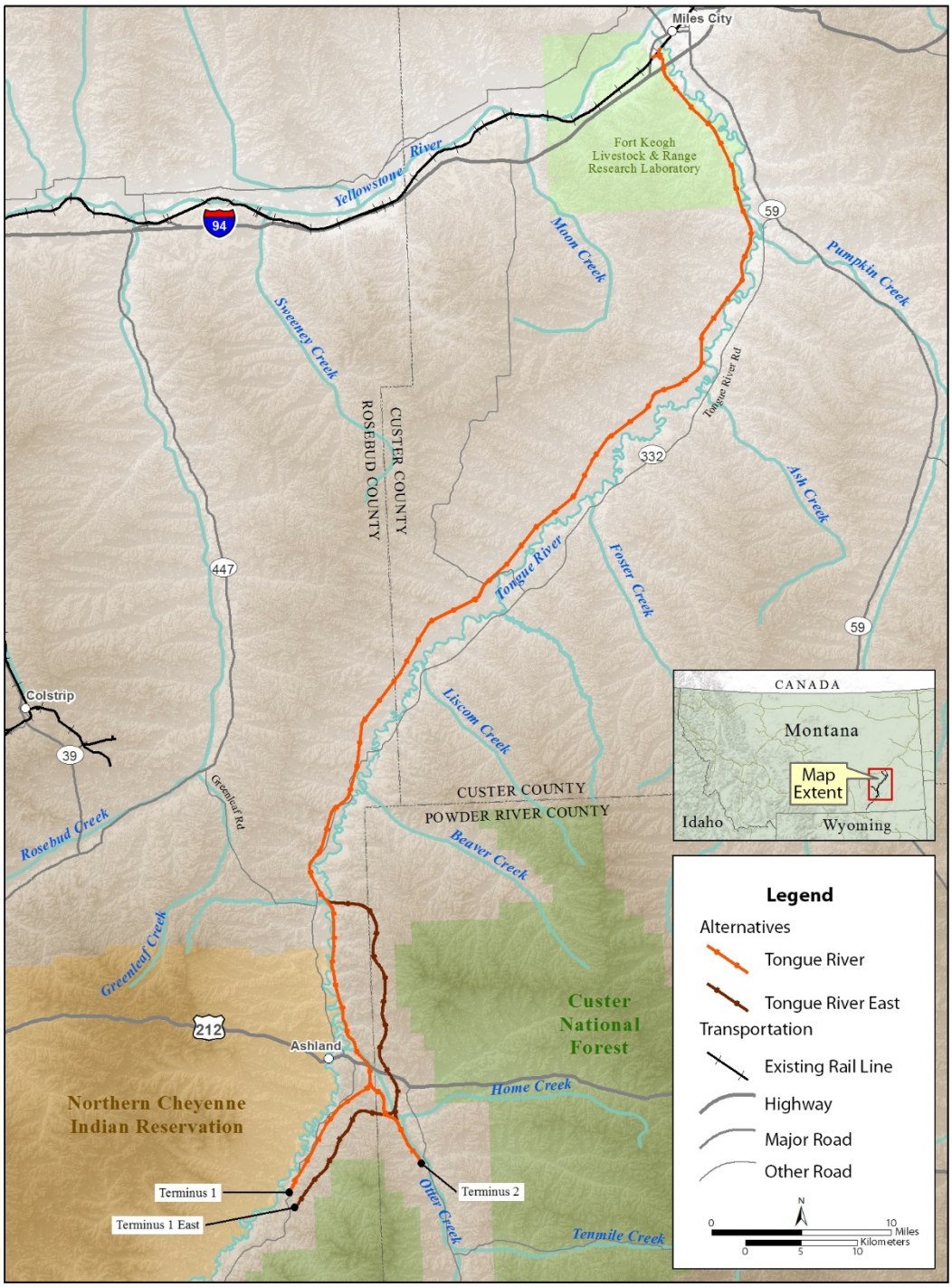


Figure 2-1. The Tongue River Alternatives

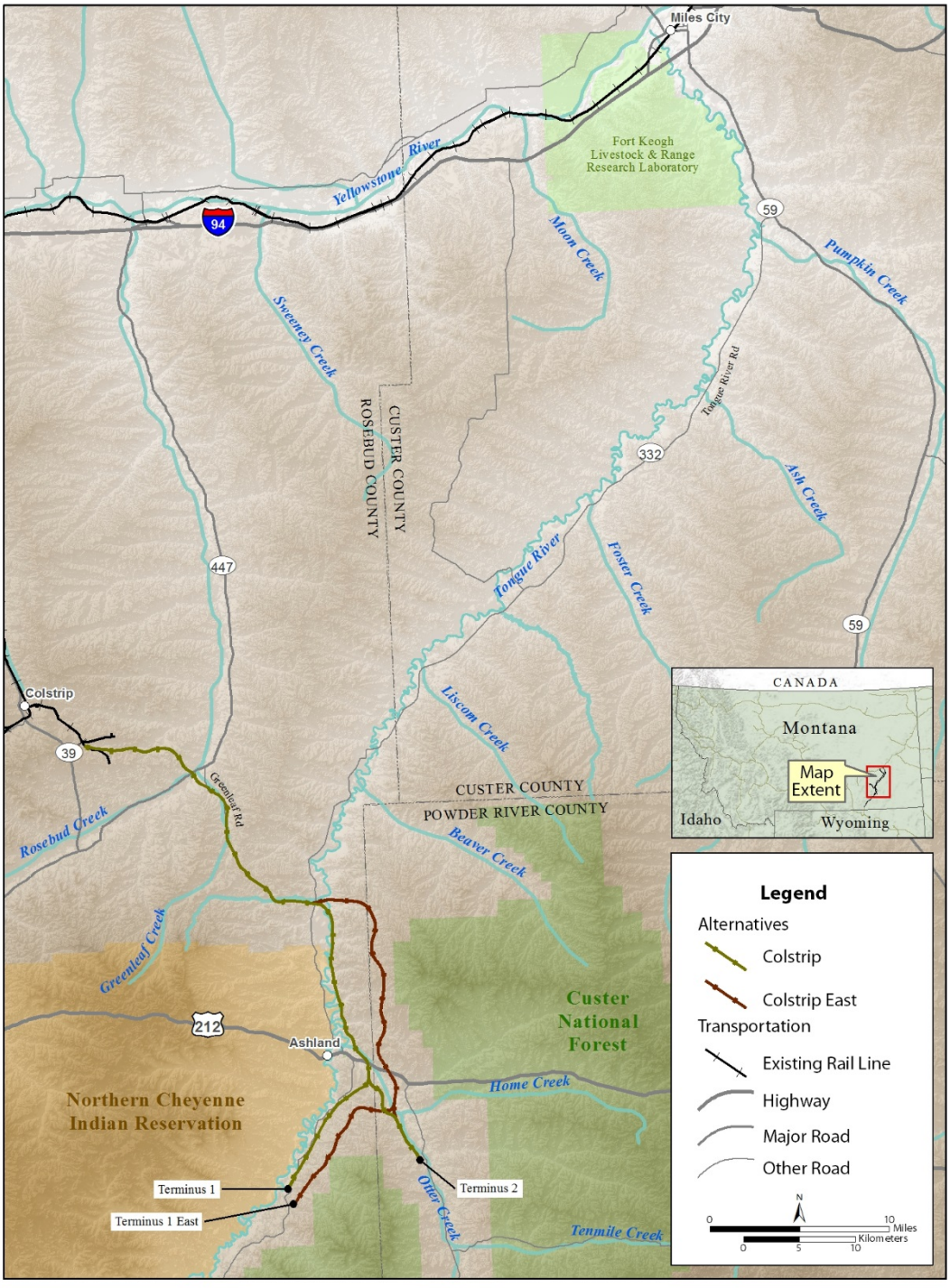


Figure 2-2. The Colstrip Alternatives

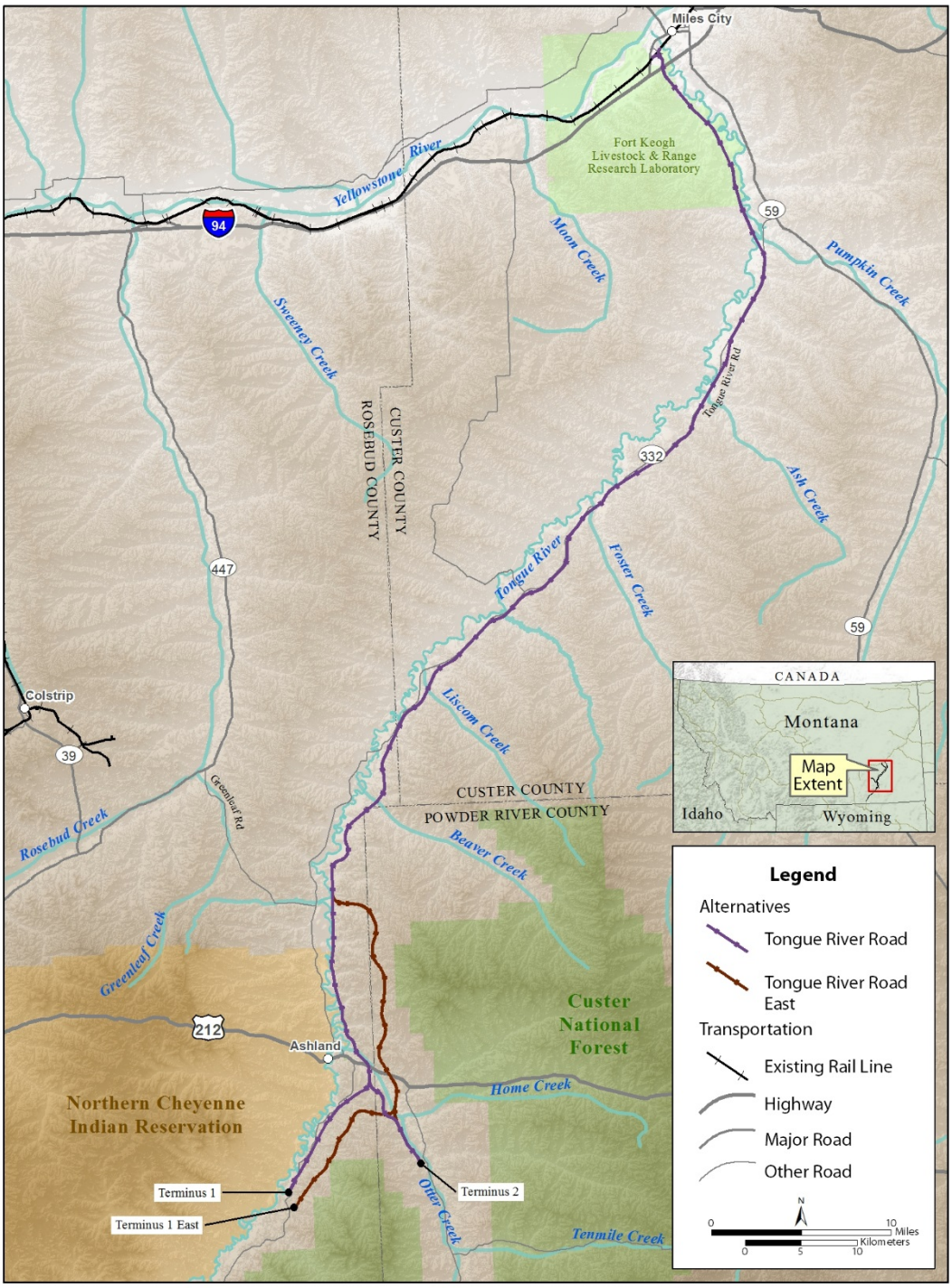


Figure 2-3. The Tongue River Road Alternatives

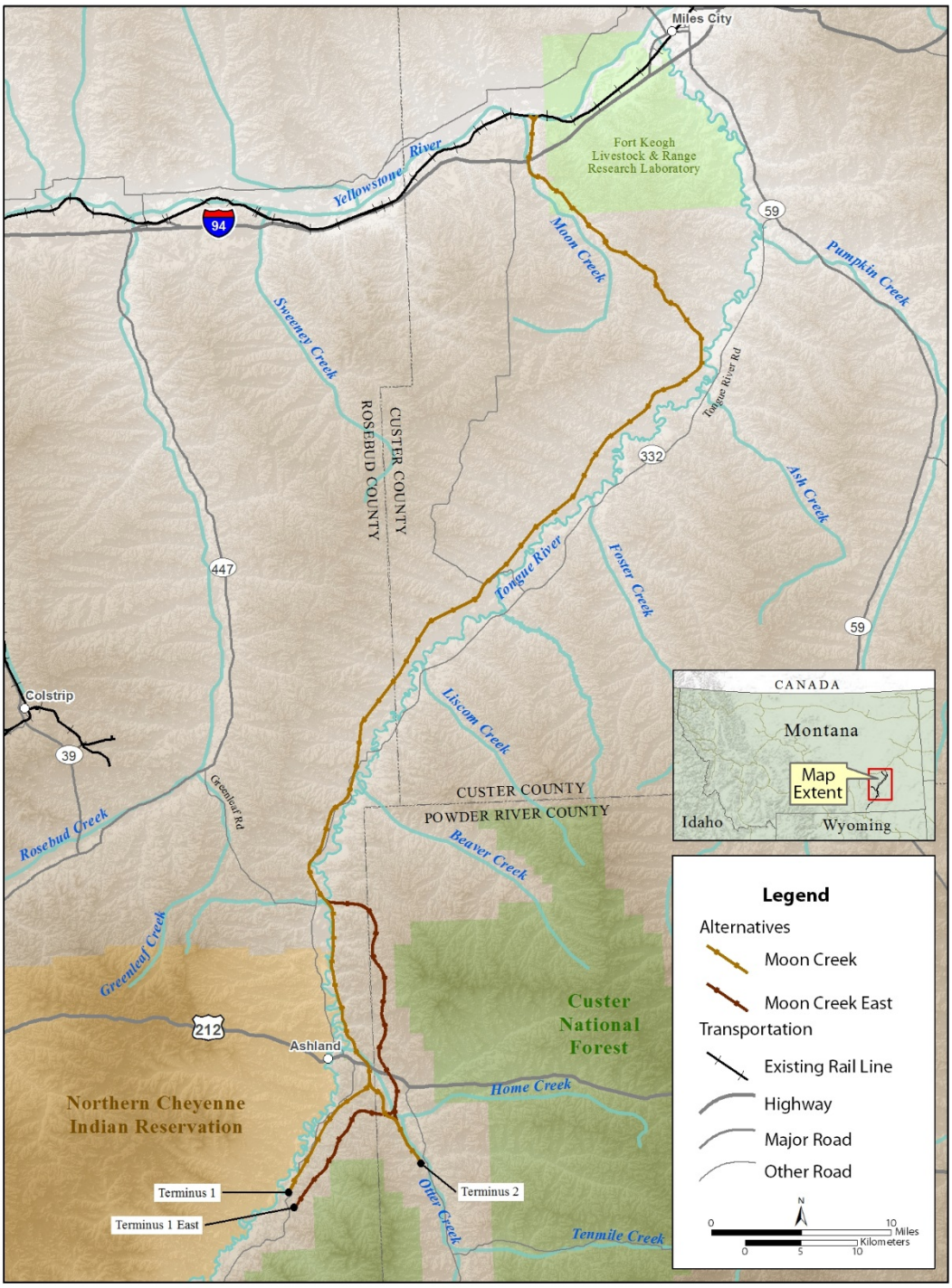


Figure 2-4. The Moon Creek Alternatives

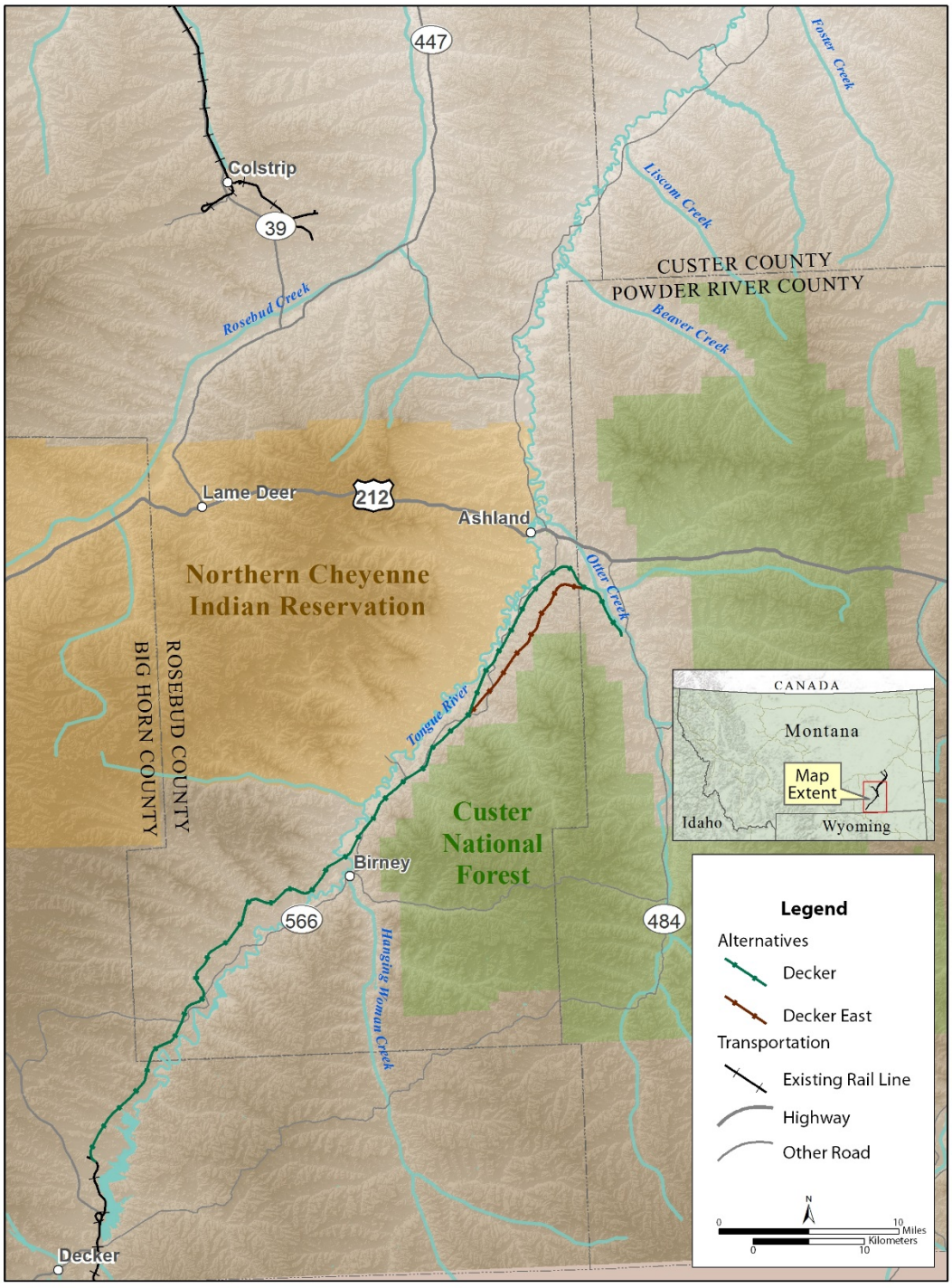


Figure 2-5. The Decker Alternatives

2.1.3.1 Eastern Variation

Of the 10 point-to-point build alternatives identified in Table 2-1, five consist of a primary route only: the Tongue River, Colstrip, Tongue River Road, Moon Creek, and Decker Alternatives. Each of these build alternatives would connect an existing BNSF rail line to two terminus points located near Otter Creek and Ashland area mines. Terminus 1 would be located at the site of the previously proposed Montco Mine, approximately 8 miles south of Ashland. Terminus 2 would be located at the site of the proposed Otter Creek Mine, approximately 7 miles southeast of Ashland. Based on comments received during scoping, OEA developed the Eastern Variation, which could replace segments of the primary routes.

Variation Segments

The Eastern Variation consists of one or more variation segments. The Ashland East Variation segment and the Terminus 1 Variation segment are described in the following subsections. The build alternatives and their modification by the Eastern Variation are described in Section 2.1.3.2, *Build Alternatives*.

Ashland East Variation

OEA developed the Ashland East Variation segment in response to a scoping comment from the Northern Cheyenne Tribe requesting a route as far as possible from the eastern boundary of the Northern Cheyenne Indian Reservation and the Tongue River. The Ashland East Variation segment would replace a segment of the northern alternatives[9] (referred to as the primary segment) with a segment located farther east.

The Ashland East Variation segment would replace the primary segment beginning approximately 8 miles north of Ashland.[10] Instead of running south along the Tongue River, this segment would continue east for approximately 3 miles before curving to the south. This variation segment would generally parallel the Tongue River to the east at distances of 2 to 4 miles. The variation segment would pass approximately 2 miles east of Ashland before splitting at a point approximately 2.5 miles northwest of Terminus 2. As originally designed, the Ashland East Variation segment would terminate at Terminus 1 and Terminus 2.

Terminus 1 Variation

OEA developed the Terminus 1 Variation segment in response to the same request from the Northern Cheyenne Tribe for a more eastern route. Beginning at Terminus 1 East, approximately 1.8 miles southeast of Terminus 1, this variation segment would travel northeast and join the Ashland East Variation segment.

[9] The northern alternatives are the Tongue River Alternatives, Colstrip Alternatives, Tongue River Road Alternatives, and Moon Creek Alternatives. The southern alternatives are the Decker Alternatives.

[10] The precise location of the beginning of the Ashland East Variation varies slightly depending on which primary alternative it is paired with.

Application of the Eastern Variation

Northern Alternatives

The Ashland East Variation segment and Terminus 1 Variation segment were originally developed as separate variations in response to comments during the scoping process suggesting that parts of the proposed rail line be shifted away from the Tongue River and the Northern Cheyenne Indian Reservation. OEA later determined that because the two variation segments directly connect and because both address the same concerns of the Northern Cheyenne Tribe, the two variation segments should be combined into the Eastern Variation. Thus, a version of each northern alternative that includes the entire Eastern Variation will be analyzed. The northern alternatives that include the Eastern Variation are the Tongue River East Alternative, Colstrip East Alternative, Tongue River Road East Alternative, and Moon Creek East Alternative (Section 2.1.3.2, *Build Alternatives*).

Southern Alternatives

To adequately address the comments from the Northern Cheyenne Tribe and because the Ashland East segment of the Eastern Variation can only be applied to the northern alternatives, OEA developed an eastern variation of the Decker Alternative that would include only the Terminus 1 Variation segment. The Decker East Alternative is described in Section 2.1.3.2, *Build Alternatives*.

2.1.3.2 Build Alternatives

Tongue River Alternatives

Tongue River Alternative

The Tongue River Alternative would follow the Tongue River between Miles City, Montana, and two terminus points south of Ashland (Figure 2-1). It would extend from the BNSF main line between the Miles City Fish Hatchery and Spotted Eagle Lake, proceeding south along the west side of the Tongue River and crossing through the U.S. Department of Agriculture (USDA) Fort Keogh Livestock and Range Research Laboratory (Fort Keogh). Approximately 10 miles north of Ashland, this build alternative would cross the Tongue River and continue south. After crossing Otter Creek approximately 3 miles southeast of Ashland, it would branch into two spurs. One spur would follow the Tongue River Valley approximately 7 miles southwest to Terminus 1 near the site of the previously planned Montco Mine. The other spur would follow Otter Creek approximately 5 miles southeast to Terminus 2 at the proposed Otter Creek Mine.

Tongue River East Alternative

The Tongue River East Alternative would be nearly identical to the Tongue River Alternative; however, its southern segment would be replaced by the Eastern Variation as

described in Section 2.1.3.1, *Eastern Variation*. This build alternative would be located farther east from the Northern Cheyenne Indian Reservation and the Tongue River.

Colstrip Alternatives

Colstrip Alternative

The Colstrip Alternative was designated as TRRC's preferred alternative.[11] This build alternative would extend from the BNSF line, known as the Colstrip Subdivision, at Colstrip, southeast toward Ashland (Figure 2-2). The Colstrip Subdivision connects with the Forsyth Subdivision at a *wye*[12] junction (where trains can switch between lines) near Nichols, Montana, approximately 6 miles west of Forsyth, Montana and approximately 50 miles west of Miles City. The Colstrip Alternative would cross Cow Creek and Rosebud Creek, follow the Greenleaf Creek Valley, and descend into the Tongue River Valley, where it would cross the Tongue River north of Ashland. The Colstrip Alternative would then travel to the two terminus points along a route identical to the Tongue River Alternative. As noted in Section 2.1.1.1, *Alternatives Considered from Tongue River I*, a similar Colstrip Alternative was evaluated in the Tongue River I proceeding in the 1980s.

Colstrip East Alternative

The Colstrip East Alternative would be nearly identical to the Colstrip Alternative; however, its southern segment would be replaced by the Eastern Variation as described in Section 2.1.3.1, *Eastern Variation*. This build alternative would be located farther from the Northern Cheyenne Indian Reservation and the Tongue River.

Both Colstrip Alternatives would require an upgrade of the track along the existing Colstrip Subdivision between Colstrip and the BNSF Forsyth Subdivision to support the additional rail traffic (Section 2.2.13, *Colstrip Subdivision Upgrades*).

Tongue River Road Alternatives

Tongue River Road Alternative

The Tongue River Road Alternative would depart Miles City along the same course as the Tongue River Alternatives, continuing to a point just north of Pumpkin Creek (Figure 2-3). There it would cross the Tongue River, turn south, and continue along the east side of the river to rejoin the Tongue River Alternatives about 10 miles north of Ashland. From there, the Tongue River Road Alternative would follow the same route as the Tongue River Alternative to reach the two terminus points.

[11] As proposed in TRRC's December 17, 2012 revised application and refined in its January 17, 2014, Applicant Preferred Alternative Revision Memorandum.

[12] Terms italicized at first use are defined in Chapter 25, *Glossary*.

Tongue River Road East Alternative

The Tongue River Road East Alternative would be nearly identical to the Tongue River Road Alternative; its southern segment would be replaced by the Eastern Variation as described in Section 2.1.3.1, *Eastern Variation*. This build alternative would be located farther from the Northern Cheyenne Indian Reservation and the Tongue River.

Moon Creek Alternatives

Moon Creek Alternative

The Moon Creek Alternative would extend from the BNSF main line approximately 8 miles southwest of Miles City, proceeding south and southeast along the east side of Moon Creek and through the southwest corner of Fort Keogh to the divide separating the Tongue River and Yellowstone River drainages (Figure 2-4). The Moon Creek Alternative would descend to the Tongue River Valley floor and join the Tongue River Alternatives about 14 miles south of Miles City. From this location, the Moon Creek Alternative would travel to the two terminus points along an identical route as the Tongue River Alternative.

Moon Creek East Alternative

The Moon Creek East Alternative would be nearly identical to the Moon Creek Alternative; however, its southern segment would be replaced by the Eastern Variation as described in Section 2.1.3.1, *Eastern Variation.* This build alternative would be located farther from the Northern Cheyenne Indian Reservation and the Tongue River.

Decker Alternatives

Decker Alternative

The Decker Alternative would extend from Terminus 2 at the proposed Otter Creek Mine, and it would follow Otter Creek approximately 5 miles northwest along the same route as the Tongue River Alternatives. The Decker Alternative would turn southwest, generally paralleling the Tongue River through Terminus 1 (Figure 2-5). It would continue along the eastern side of the Tongue River, following the route approved in Tongue River III (Section 2.1.2.3, *Decker 1 Alternative*), until approximately 1 mile north of Birney. The Decker Alternative would then cross the Tongue River and run along the foothills on the northwest bank of the river in order to avoid the Wolf Mountains Battlefield National Historic Landmark. Approximately 6 miles southwest of the landmark, the Decker Alternative would rejoin the planned route for the Decker 1 Alternative and would follow that route southwest for approximately 10 miles before connecting to the existing Spring Creek railroad spur near Decker.

Decker East Alternative

The Decker East Alternative would be nearly identical to the Decker Alternative; however, its northern segment would be replaced by the Terminus 1 East Variation.[13] This variation would start at approximately 2.4 miles southwest of Terminus 1 East and end on the spur line that would lead to Terminus 2 (Figure 2-5). The Decker East Alternative would be located farther from the Northern Cheyenne Indian Reservation and the Tongue River.

No-Action Alternative

Under the No-Action Alternative, the Board would not license TRRC to construct and operate a new common carrier rail line primarily in order to transport low sulfur, subbituminous coal from mine sites developed in Rosebud and Powder River Counties, Montana, including proposed mines in the Otter Creek area.

2.2 Proposed Rail Line Construction

This section describes construction of the proposed rail line, including right-of-way needs, construction components and materials, roadways, culverts, bridges, and permanent or temporary facilities that would be anticipated as part of the proposed rail line. This section also describes the anticipated construction process and schedule if the proposed rail line is approved.

2.2.1 Right-of-Way

Unless otherwise indicated, TRRC would perform all construction activities within the right-of-way. The width of the right-of-way would vary depending on site-specific conditions such as topography, soil slope stability, and other geotechnical conditions. Table 2-2 provides the right-of-way measurements for each build alternative.

[13] Because the Decker East Alternative primarily travels south, the Ashland East Variation segment of the Eastern Variation is not applicable.

Table 2-2. Right-of-Way Measurements by Build Alternative

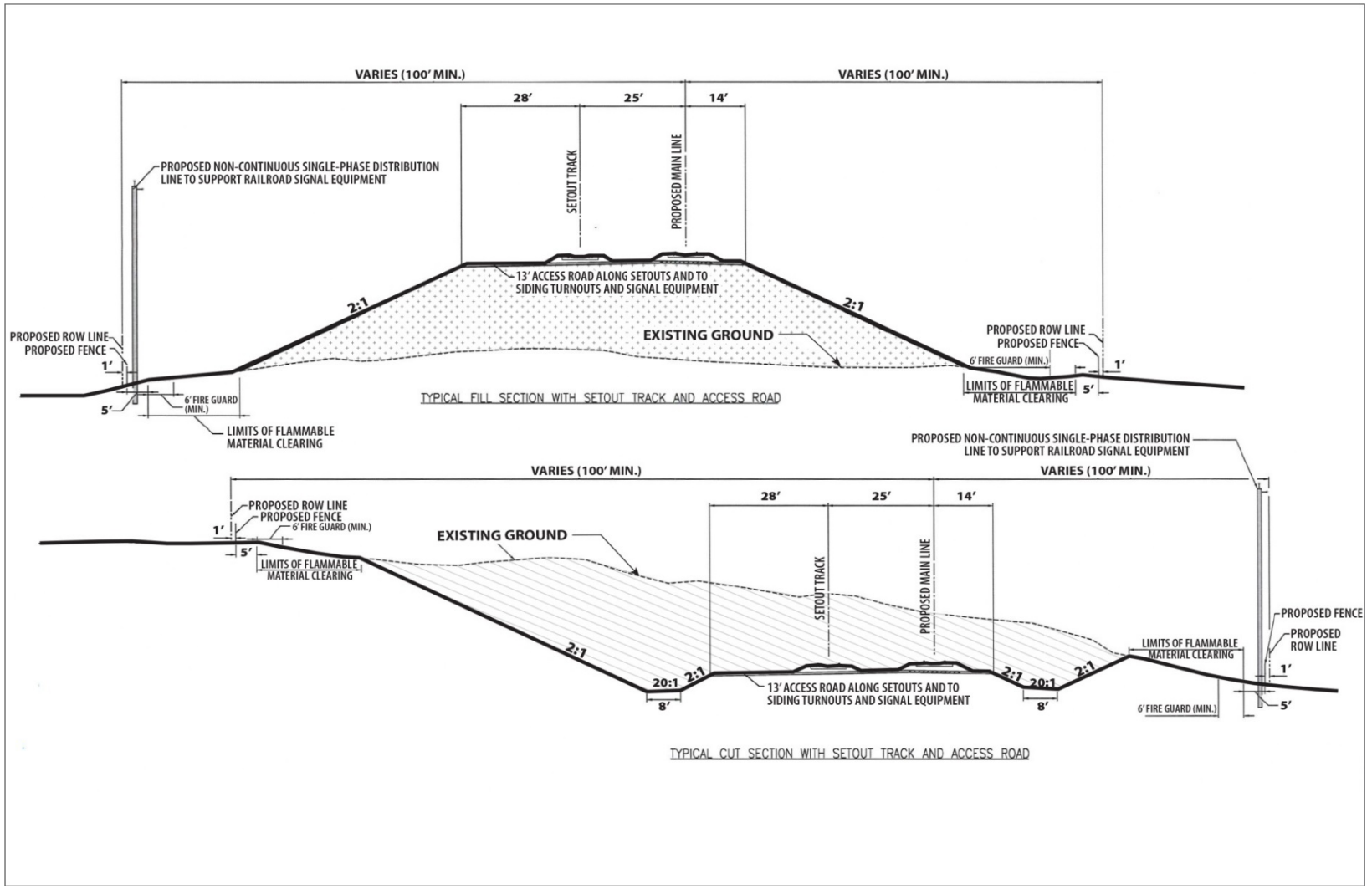
Alternative	Right-of-Way Length (miles)	Average Right-of-Way Width (feet)	Maximum Right-of-Way Width (feet)	Right-of-Way Area (acres)
Tongue River	83.7	376	1,200	3,783
Tongue River East	86.3	367	1,200	3,803
Colstrip	42.3	400	1,000	2,040
Colstrip East	45.4	385	1,050	2,094
Tongue River Road	83.7	420	1,000	4,234
Tongue River Road East	85.9	410	1,050	4,218
Moon Creek	82.1	405	1,200	4,026
Moon Creek East	84.7	396	1,200	4,047
Decker	51.1	455	1,450	2,826
Decker East	49.6	449	1,450	2,695

As shown in Table 2-2, the measurements of the right-of-way would vary by build alternative, ranging in length from 42.3 miles for the Colstrip Alternative to 86.3 miles for the Tongue River East Alternative. Because of site-specific factors, the width of the right-of-way would also vary by build alternative. The average right-of-way width would range from 367 feet for the Tongue River East Alternative to 455 feet for the Decker Alternative. The maximum width would range from 1,000 feet for the Colstrip Alternative and the Tongue River Road Alternative to 1,450 feet for the Decker Alternatives. Longer and wider rights-of-way would require more acreage. The total acreage would range from 2,040 acres for the Colstrip Alternative (one of the shorter and narrower build alternatives), to 4,234 acres for the Tongue River Road Alternative (one of the longer and wider build alternatives).

OEA assumed that the entire right-of-way would be acquired by TRRC. However, only the rail line footprint would be permanently cleared of vegetation for construction and operation of the proposed rail line. TRRC might not need to use the entire right-of-way after construction. As part of OEA's proposed mitigation, TRRC would be required to reclaim and restore areas temporarily disturbed during construction within the right-of-way after construction is completed (Chapter 19, *Mitigation*).

The footprint for the proposed rail line would include the railbed as well as the full width of the area cleared and cut or filled. The footprint would include other physical structures installed as part of the proposed rail line such as access roads, the rail bed, staging areas, fence lines, and associated facilities in some locations. These facilities could include communication towers, *siding tracks* and *set-out tracks*, and power distribution lines. There could be minor disturbances outside of the proposed rail line footprint during construction for activities such as bridge material and crane staging, installation of erosion control, and seeding. Figure 2-6 presents cross-sections of the right-of-way and illustrates features such as an access road and set-out tracks that would not be constructed in all locations.

Figure 2-6. Cross-Sections of Rail Line Right-of-Way



TRRC has indicated that the right-of-way for build alternatives would be fenced continuously except at bridges, crossings, and cattle passes. As required by Montana Code Annotated (MCA) 69-14-701, railroad corporations must build and maintain fences on both sides of their track and property except where water ditches, embankments, terrain, or other sufficient protection prevents domestic animals from straying onto the right-of-way. MCA 69-14-702 requires that a railroad corporation makes an opening in the fence every 4 miles or as practicable in grazing lands.

2.2.2 Rail Line Access Roads

For rail line construction and post-construction operation, TRRC would build rail line access roads parallel to the track and within the right-of-way. These roads would provide access to siding tracks, set-out tracks, bridge abutments, signals, and detectors. TRRC would use existing roads crossing the build alternative for entry and exit to the rail line access roads and does not anticipate the need to construct new lateral access roads. Additionally, TRRC would not construct a continuous access roads along any build alternative; rather, the roads would connect to the nearest existing road crossing to minimize their lengths. Therefore, the access roads would represent a relatively small percentage of the overall project length regardless of the build alternative. The access roads would be 13 feet wide and would be constructed with 6 inches of aggregate similar to track subballast. The connections to public roads would be reviewed to determine locations based on coordination and approval of the roadway owner, operator, or agency with jurisdiction.

2.2.3 Railbed Construction

Before any track could be placed, TRRC would construct a suitable railbed. The railbed would form the base on which TRRC would lay the subballast, ballast, rail ties, and rail. The railbed would typically measure 28 feet in width. Railbed construction would include clearing and excavating earth and rock on previously undisturbed land. Because the natural topography is variable, construction would require both cuts and fills. To the extent practicable, TRRC would adjust the design to balance cut and fill quantities such that the amount of cut would equal the amount of fill and no export or import of cut or fill would be required. TRRC would remove any excess fill material and would transport and deposit it appropriately.

2.2.4 Track Construction

Track would be built on 12 inches of compacted granite ballast. The subballast layered beneath the ballast would consist of 12 or more inches of graded rock with a maximum allowable size of 2 inches. Subballast could also consist of 2 to 6 inches of hot-mix asphalt

track bed, depending on availability of materials at the time of bidding and construction. The railroad would be designed to accommodate gross car weights of up to 315,000 pounds.[14]

2.2.5 Material Acquisition for Rail Line Construction

TRRC would require ballast, subballast, fill material, rail ties, and rail for construction of the proposed rail line. TRRC would obtain fill material from cut-and-fill activities during railbed construction. If site-specific cut volumes were not sufficient to balance fill volume requirements, TRRC might need to import fill material. In such instances, TRRC would obtain additional fill material from sources within the right-of-way or from off site.

Subballast material is available at most rock quarries in the area. Quarries near Forsyth are capable of producing the subballast material in the quality and quantity needed for the proposed rail line. Subballast would be transported by truck, train, or a combination of both, as determined by construction contractors based on economic evaluation. Construction contractors would also evaluate the potential cost savings of using asphalt beneath the track ballast in lieu of subballast.

TRRC would transport ballast to the construction site and apply it to the rail line after the ties and rails have been installed. The ballast material used in construction would be acquired from the Pipestone Quarry near Whitehall, Montana; transported to the work site by trains; and dumped into place on new track constructed by a track-laying machine.

TRRC plans to use water for dust suppression and soil compaction during construction. The construction contractor would coordinate the purchase of water rights from the Tongue River, the Yellowstone River, water wells, or a combination thereof.

2.2.6 Construction Staging Areas

The proposed rail line might require construction staging areas to store equipment and materials, provide space to weld sections of the rail line, and otherwise support rail line construction activities. TRRC anticipates that most, if not all, staging areas would be located within the railroad right-of-way in generally level areas with public access. Construction contractors would determine the locations and sizes of staging areas during final engineering. In accordance with OEA's proposed mitigation, staging areas located inside the right-of-way would be reclaimed and restored after construction (Chapter 19, *Mitigation*).

2.2.7 Worker Housing

TRRC does not anticipate needing construction camps to provide temporary housing for construction workers. TRRC anticipates that construction workers from outside the area would locate appropriate temporary housing in communities near the proposed rail line.

[14] BNSF's gross car weight allowance is 286,000 pounds.

Given commuter patterns, the location of roads, and distances to build alternatives, OEA assumed that construction workers would reside in the four-county area.

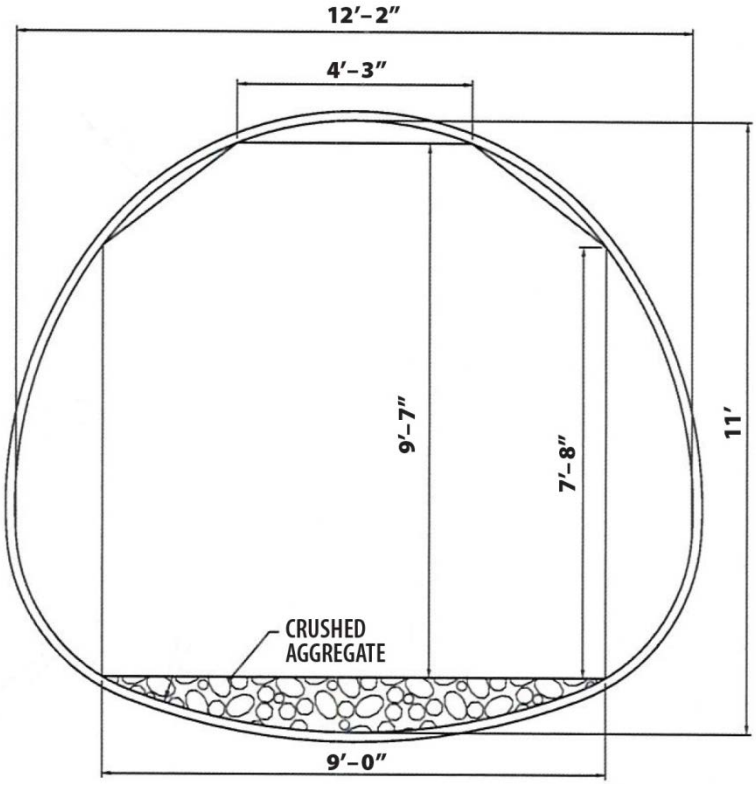
2.2.8 Bridges, Culverts, and Other Surface Water Crossings

The proposed rail line, its access roads, and associated road relocations would require bridges, culverts, and other undesignated drainage structures to cross streams, rivers, and some drainages. Livestock would also require large culverts in some locations to serve as underpasses. The locations, types, and sizes of all proposed bridges and culverts are approximate and preliminary; the exact locations, types, and sizes would be determined during the final design and permitting process, at which time TRRC would provide final designs for any bridges or culverts to federal, state, and local agencies for review as applicable.

For the purposes of crossing surface waters, TRRC would install culverts consisting of either a structural plate pipe or a corrugated metal pipe from 36 to 180 inches in diameter. Depending on the build alternative licensed, from 54 to 147 culverts would be required to cross surface waters. In addition to culverts, from 26 to 68 other drainage structures would be required at other identified surface waters (Chapter 9, Section 9.2, *Surface Water*, Tables 9.2-4 and 9.2-5). The undesignated drainage structures have yet to be designed and would likely consist of either a culvert at the surface water crossing, or the surface water would be diverted through a conveyance structure along the railbed to the next-closest surface water crossing. Culverts would also be installed along the build alternatives in areas where there are no surface waters to convey surface runoff through the railbed. All culverts and other drainage structures would comply with the design criteria guidelines of the American Railway Engineering and Maintenance of Way Association and BNSF to minimize impacts on railroad facilities and adjacent properties during flood events. In regulated floodplain areas, these design criteria would be superseded by state and federal floodplain development requirements. Final conveyance structure locations, types, and sizes would be determined during final design and permitting.

Livestock pass locations would be determined by agreements with landowners and based on topography. In general, livestock passes are best located in areas where the rail bed is about 15 feet higher than the surrounding land. The typical livestock pass would be approximately 12 feet wide, with a 9-foot-wide bed of flat, crushed aggregate. The typical livestock pass would have over 9.5 feet of vertical clearance at the center and over 7.5 feet of vertical clearance along the left and right edges of the aggregate floor (Figure 2-7).

Figure 2-7. Cross-Section of Typical Livestock Pass



TRRC would construct up to eight rail bridge crossings, depending on build alternative, across Rosebud Creek, Lay Creek, Otter Creek, Tongue River, Ash Creek, Foster Creek, Liscom Creek, Beaver Creek, and Moon Creek (Chapter 8, Section 8.4, *Fish*; Chapter 9, Section 9.2, *Surface Water*). With the exception of the bridge over the Tongue River required for the Decker Alternatives, all bridge structures would be designed to span water bodies completely with no permanent in-water structures; however, a temporary in-water structure could be required to construct a bridge over the Tongue River. Because the Decker Alternatives would require a longer bridge across the Tongue River, the design may include in-water structures.

TRRC would size bridges crossing rivers and streams in accordance with BNSF hydraulic design criteria, which require that each bridge is designed based on site-specific 50-year and 100-year flood events. The lowest structural element of any bridge would be above the water surface elevation associated with 50-year flood events, and water elevation associated with 100-year flood events would not overtop the rail track subgrade at its lowest point on either side of the bridge. Additionally, the hydraulic conveyance through the structure would be designed to minimize adverse impacts during a 100-year flood event.

2.2.9 Construction Schedule

The construction season in Montana typically begins in April and ends in October, depending on weather. Assuming a construction season of 8 months per year, construction of the build

alternatives would range from 20 months over a period of 2.5 years to nearly 50 months over approximately 6 years. It is likely that an 8-month schedule would be used to construct the proposed rail line; however, TRRC has indicated that a year-round schedule may be considered if project economics and conditions dictate. Assuming a year-round construction schedule, the construction duration would range from 16 to almost 40 consecutive months. Table 2-3 identifies the construction duration for all build alternatives under both the 8-month and the year-round construction schedules.

Table 2-3. Build Alternative Construction Schedules

	8-Month Construction Schedule		12-Month Construction Schedule	
Alternative	**Months**	**Years**	**Months**	**Years**
Tongue River	24.0	3.0	20.1	1.7
Tongue River East	38.0	4.7	30.4	2.5
Colstrip	20.0	2.5	16.0	1.3
Colstrip East	30.0	4.0	22.1	1.8
Tongue River Road	36.0	5.0	30.0	2.5
Tongue River Road East	45.2	5.6	36.2	3.0
Moon Creek	36.0	5.0	29.5	2.5
Moon Creek East	49.7	6.2	39.8	3.3
Decker	45.0	6.0	35.3	2.9
Decker East	45.0	6.0	35.3	2.9

Winter grading activities that would take place during a 12-month construction schedule would require around-the-clock construction to prevent the graded embankment from freezing. The around-the-clock construction would likely be required from early November to early March.

TRRC anticipates that the proposed rail line could be constructed and operational by the time that coal production from the Otter Creek Mine would begin. The estimated date of first coal production at Otter Creek Mine is no earlier than 2018. The timing and sequence of rail line construction would depend on funding, final design, and permit conditions.

2.2.10 Grade Crossings

To maintain access to existing public and private roads across the rail line, TRRC would install grade crossings where the rail line would cross a roadway. For public roads, TRRC proposes at-grade crossings except where the rail line would cross Highway 212 or Interstate 94, which would be grade-separated crossings (Chapter 3, Section 3.3, *Grade-Crossing Delay*; Figures 3.3-1 and 3.3-2; Table 3.3-3). In accordance with OEA's proposed mitigation, the final design of grade crossings would be determined in consultation with the Montana Department of Transportation. TRRC would determine appropriate warning devices through diagnostic evaluation with the public agency governing each public roadway. TRRC would determine the number and location of grade crossings across private

roads during final design. Private crossings would have passive protection in the form of crossbuck signs.

2.2.11 Road Relocations

TRRC has identified existing public and private roads that would be relocated to accommodate the proposed rail line. The number of roads proposed for relocation would range from 10 to 49, and the length of any given relocation would range from 0.05 mile to 2.7 miles, depending on build alternative. If relocating public roadways owned by the State of Montana or other public entity, the new road right-of-way would be purchased in the name of the public entity. Assuming that the present width of the road would be maintained along the relocation, from 15.4 acres to 38.8 acres of land outside the railroad right-of-way would be disturbed, depending on build alternative (Chapter 12, Section 12.2, *Land Use*, Table 12.2-6).

2.2.12 Associated Facilities

TRRC would construct and operate permanent facilities such as support facilities, communication towers, and track siding along the proposed rail line, in connection with the proposed rail line.

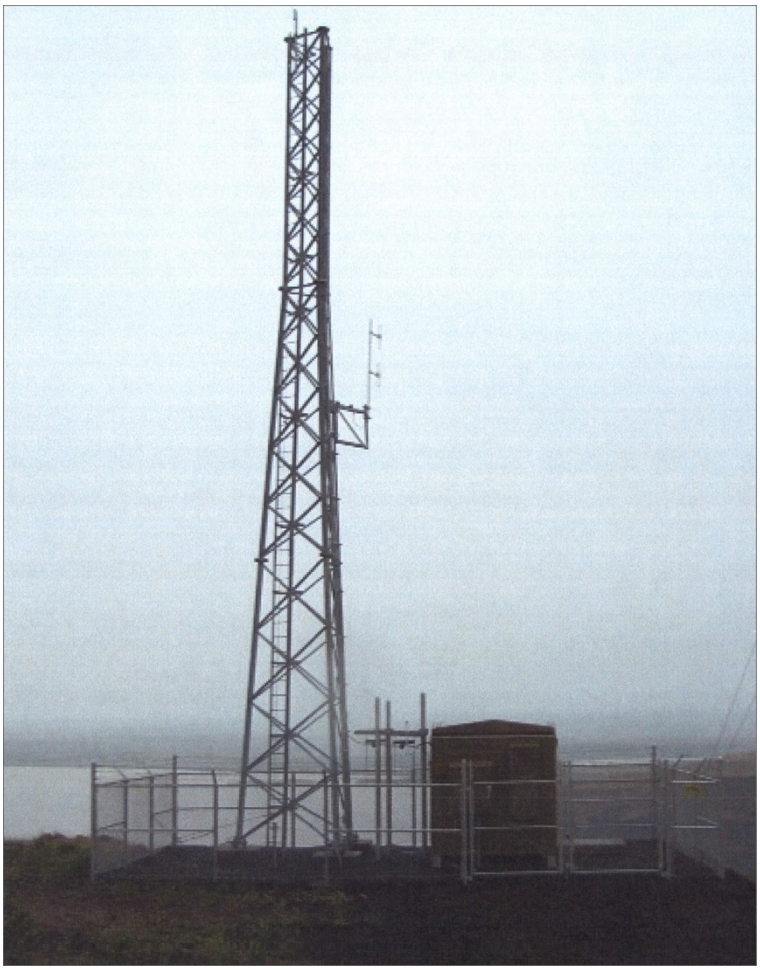
2.2.12.1 Support Facilities

TRRC proposes a small expansion of the existing BNSF maintenance-of-way headquarters in Forsyth to support the operation of the Colstrip Alternatives. The location of the building is yet to be determined, but it would be adjacent to public access and available public utilities. Both the Forsyth and Ashland facilities would accommodate train crews, maintenance-of-way, signal, and other employees as needed. A similar expansion of the existing maintenance-of-way facility in Miles City would be required to support the Tongue River Alternatives, Tongue River Road Alternatives, and Moon Creek Alternatives. An expansion of the existing maintenance-of-way facility in Sheridan, Wyoming would be required to support the Decker Alternatives. For any build alternative, TRRC would construct a new 1,100-square-foot building in Ashland, Montana to support rail operation.

2.2.12.2 Communications Towers

TRRC would construct from four to six new communications towers to support rail line operation, depending on the build alternative. TRRC would construct five towers ranging in height from 50 to 150 feet to support the Colstrip Alternatives and six 150-foot towers to support the Tongue River Alternatives, Tongue River Road Alternatives, and Moon Creek Alternatives. The Decker Alternatives would likely require construction of four 150-foot towers. The towers would be self-supported steel lattice towers (Figure 2-8).

Figure 2-8. Representative Photograph of a Communications Tower



2.2.12.3 Siding Tracks and Set-Out Tracks

Depending on the build alternative selected, TRRC would construct one or two 8,500-foot passing sidings at locations to be determined. One siding would be constructed to support the Colstrip Alternatives, which would be located somewhere along the southern half of the alignment. Two sidings would be constructed to allow passing along any of the Tongue River Alternatives, Tongue River Road Alternatives, and Moon Creek Alternatives. One siding would be located along the northern third and one siding would be located along the southern third of the chosen build alternative. Two sidings would be constructed to allow passing along the Decker Alternatives with one siding located in each half of either build alternative. The sidings would be constructed within the right-of-way of continuously welded rail and would be equipped with power switches compliant with Federal Railroad Administration (FRA) regulations.

TRRC would construct set-out tracks to provide temporary storage for repair and maintenance. The set-out tracks would range in length from 500 to 4,000 feet in the right-of-way, depending on the build alternative. The precise number and location of the

set-out tracks would be determined during final engineering and would be based on operational requirements, topography, and access. The Colstrip Alternatives would require two set-out tracks in the northern half of the alignment and one in the southern half. The Tongue River Alternatives, Tongue River Road Alternatives, and Moon Creek Alternatives would each require two set-out tracks in each third of the alignment. The Decker Alternatives would require two set-out tracks in each half of the alignment. Set-out tracks would be constructed of continuously welded rail.

2.2.12.4 Power Distribution Lines

The proposed rail line would require power distribution lines of relatively low voltage to support the signal system and detectors that identify dragging rail equipment and hot wheel bearings, as well as automatic equipment identification detectors. TRRC has indicated that their preliminary designs include power lines that would consist of two conductors carrying from 12.5 kilovolts to 14.4 kilovolts. These lines would be strung along wood-pole structures from 30 to 50 feet in height, spaced no more than 250 feet apart. Existing single-phase distribution lines are parallel to most public roadways in the Tongue River region. New power lines would be located to tie into the closest existing line in order to minimize the need for new power lines.

2.2.13 Colstrip Subdivision Upgrades

The Colstrip Subdivision is an approximately 30-mile BNSF rail line that runs north from Colstrip and connects to the BNSF main line along the Forsyth Subdivision near Nichols (Figure 2-9). An average of three trains per day travel the Colstrip Subdivision. Either of the Colstrip Alternatives would continue north along the Colstrip Subdivision to reach the BNSF main line. Although the Colstrip Subdivision is presently capable of supporting the reintroduction of train traffic in its existing condition, TRRC would likely upgrade all sections of the Colstrip Subdivision track constructed with a 5.5-inch rail base, weighing 112 to 115 pounds per yard to a 6-inch rail base with a weight of 136 pounds per yard. Approximately 18 miles of track would require this upgrade. TRRC would also replace existing ties on the full length of the Colstrip Subdivision at a rate of approximately 1,500 ties per mile. One new set-out track of 500 feet is planned within the existing right-of-way. Existing support tracks would serve as two additional set-out tracks, each 500 feet long. Six timber bridges would be upgraded with minor repairs made to the timber structures.

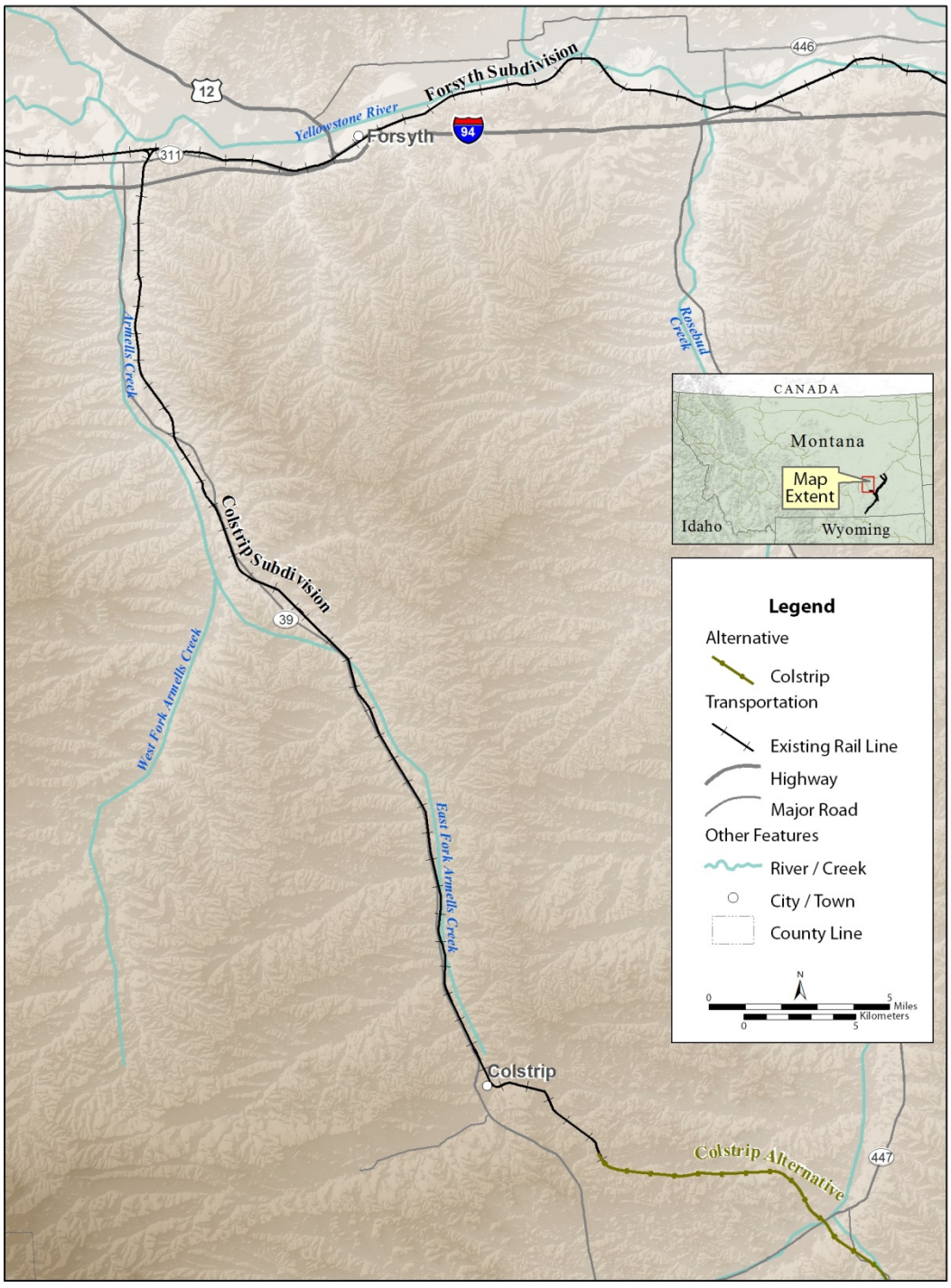


Figure 2-9. Colstrip Subdivision

TRRC would make signal and communication upgrades to the Colstrip Subdivision to support the proposed rail line, including three telecommunication towers at distances of 17 to 22 miles apart. No culvert or at-grade crossing upgrades are planned. All work is anticipated to be contained within the existing BNSF right-of-way. The construction schedule for Colstrip Subdivision upgrades is not known at this time. If one of the Colstrip Alternatives is authorized and constructed, routine inspections of the Colstrip Subdivision track and structures would determine the need for the proposed upgrades, which could be incrementally implemented and may or may not be concurrent with construction of one of the Colstrip Alternatives.

2.3 Proposed Rail Line Operation

After construction, trains operating along the proposed rail line would transport primarily low-sulfur, subbituminous coal from mines in Rosebud and Powder River Counties, including the proposed Otter Creek Mine. Trains would operate 7 days per week, 365 days per year once the Otter Creek Mine reaches full production. Up to four 4,000-horsepower locomotives would be used to move the unit trains. TRRC has indicated that the proposed rail line would be built to accommodate maximum train lengths of 150 cars; however, the actual train size and locomotive configuration would be determined by destination, and the average train would have 125 cars. Therefore, this Draft EIS analyzes the potential impacts resulting from the average train length of 125 cars.

Trains on the proposed rail line would operate at FRA Class 3 standards (49 Code of Federal Regulations [C.F.R.] Part 213). The maximum safe operating speed on a FRA Class 3 rail line is 40 miles per hour for freight rail. TRRC anticipates that average operating speeds would range from 29.7 to 39.5 miles per hour, depending on the build alternative and whether the train is loaded or empty.

2.3.1 Maintenance

TRRC would construct the proposed rail line using new materials, which would initially require a minimum amount of maintenance. TRRC has indicated that in some locations, during the first year of operation, the newly constructed railroad could develop low spots requiring spot surfacing—a process that fills in low spots that develop as the rail settles immediately after construction. TRRC would also perform periodic maintenance and inspections to ensure safe and reliable rail line operation.

2.3.2 Staffing

Because TRRC would enter into an arrangement with BNSF to operate the rail line, employees used for rail line operation would likely be BNSF employees. TRRC estimates that operation of the Colstrip Alternative would require a staff of about 24 people (Table 2-4). Many of the 24 people would have responsibilities beyond operation and

maintenance of the proposed rail line. TRRC anticipates that maintenance-of-way employees would consist of a three-person section gang and two track inspectors located in Forsyth. A BNSF wheel truck and crew consisting of two car operators would maintain equipment. BNSF personnel from these departments would manage signal and communications maintenance work. Two BNSF track inspectors are expected to be sufficient, based on the projected traffic levels of 20 million tons of coal per year. More BNSF track inspectors would be added if traffic levels increased. The operation staffing levels would vary slightly depending on the build alternative and its length. Seven BNSF train crews (14 operation employees) would be required for projected traffic levels of 20 million tons of coal per year regardless of what build alternative was authorized.

Table 2-4. Expected Operation Staffing

Position	Number of Employees
Supervising trainmaster	1
Train crew members	14
Section gang	3
Track inspectors	2
Carman/inspectors	2
Signal technician	1
Communication technician	1
Total	24

2.3.3 Rail Traffic

TRRC anticipates rail traffic along the proposed rail line to average approximately 7.4 trains per day (3.7 in each direction), with 125 coal cars per train. TRRC bases this estimate on the estimated maximum coal production level of 20 million tons per year at full production from the Otter Creek Mine. Rail traffic could vary because of mine development and changes in the domestic and international markets for coal, as well as requests to handle other commodities.

2.3.3.1 Proposed and Potentially Induced Mines

Because the Tongue River region contains additional quantities of coal, future rail traffic could also include shipments of coal from other mines that could be induced by the availability of a nearby rail line. OEA analyzed the coal production that could be induced by construction and operation of the proposed rail line. The analysis considered the proposed Otter Creek Mine and two potentially induced mines: one at the Poker Jim Creek–O'Dell Creek coal deposit, and one at the Canyon Creek coal deposit. The Poker Jim Creek–O'Dell Creek deposit is located in and around the previously planned Montco Mine, and the Canyon Creek coal deposit is located along the Decker Alternative, south of the Northern Cheyenne Indian Reservation (Figure 2-10).

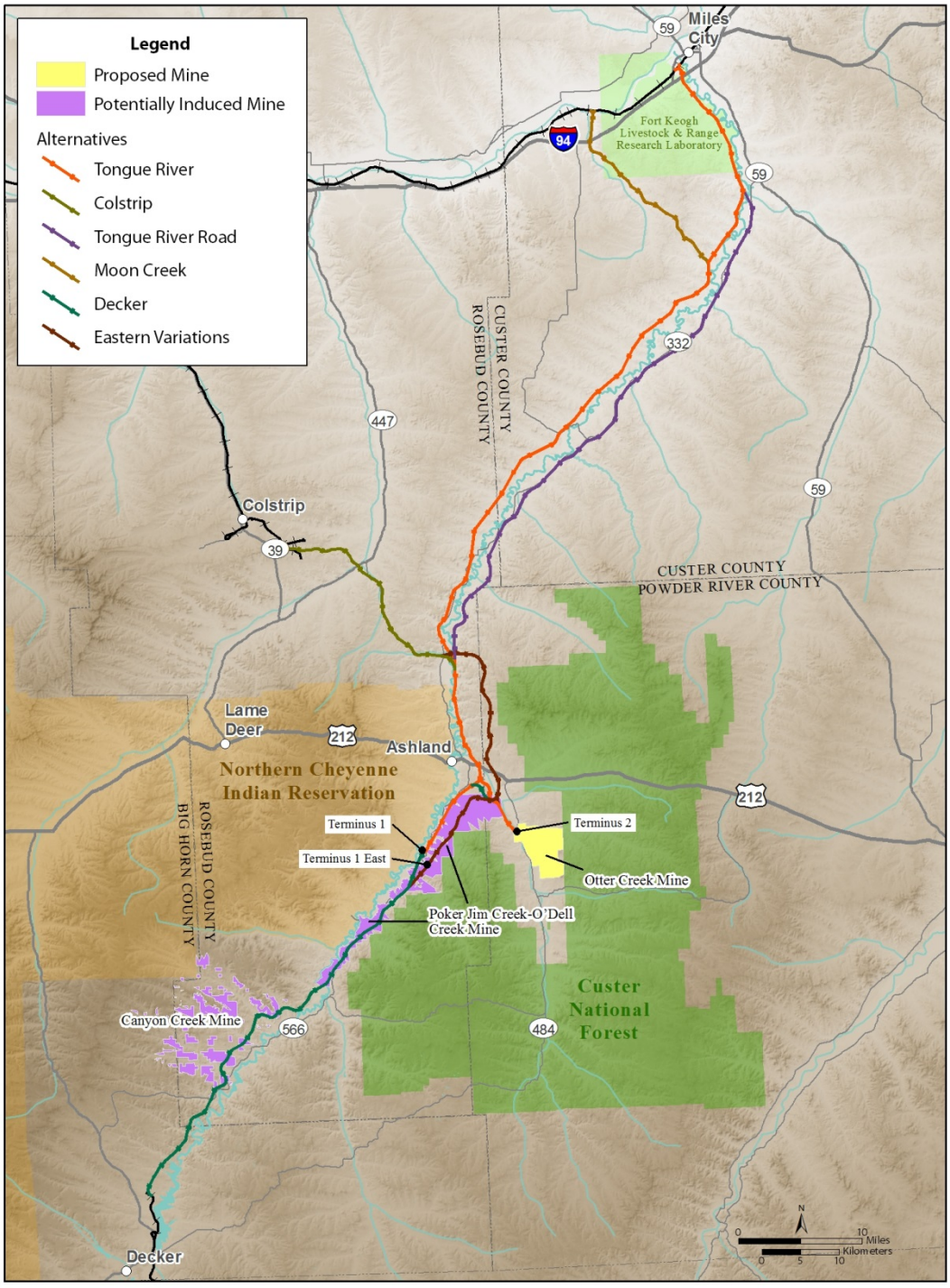


Figure 2-10. Proposed and Potentially Induced Mines

The coal deposits shown in Figure 2-10 do not reflect potential mining activity; they show the entire coal deposit and available reserves. Not all deposits may be suitable for mining. OEA examined other coal deposits in the area; however, they were eliminated from further study because of factors such as higher overburden ratio, locations more than 15 miles from the build alternatives, low heat content, and a low amount of recoverable reserves. OEA estimated that coal production levels for these mines would range from 20 million tons per year from the proposed Otter Creek Mine alone to 72 million tons per year from the Otter Creek Mine and the two potentially induced mines at the Poker Jim Creek–O'Dell Creek and Canyon Creek coal deposits.

2.3.3.2 Coal Market Analysis

The domestic and international coal markets could exert significant influence on rail traffic along the proposed rail line. OEA used the Integrated Planning Model (IPM®)[15] to assess marketable coal production, rail traffic, and national and international coal distribution patterns. OEA's analysis also examined the impacts on coal markets from economic and regulatory uncertainties with a focus on low natural gas prices and carbon dioxide emission regulations.

OEA developed three coal production scenarios to determine impacts on rail transportation. The lowest scenario included only the proposed coal production tonnage as described in TRRC's supplemental application. The medium and high production scenarios are based on the available coal resources in the Tongue River region; the current and projected future coal market demand in the United States and internationally; and associated transportation costs, routes, and export terminals. This analysis is described in Appendix C, *Coal Production and Markets*.

OEA modeled 21 *primary sensitivity scenarios* based on combinations of three sets of variables across four analysis years (2018, 2023, 2030, and 2037), including three sensitivity analysis scenarios for carbon dioxide regulations and natural gas production and six no-action alternative scenarios based on the three sets of variables and sensitivity analysis scenarios.

- Either a northern alternative or southern alternative.
- Three levels of coal production capacity (low, medium, and high).
- Three levels of coal export capacity in the Pacific Northwest (zero, medium, and high).
- Three sensitivity scenarios to analyze market conditions with new carbon dioxide regulations and fluctuating natural gas prices.

[15] This model is also used by the U.S. Environmental Protection Agency, other government entities, electric utilities, independent power producers, coal companies, and environmental groups. A full explanation of the model is provided in Appendix C, *Coal Production and Markets.*

Table 2-5 summarizes coal production and train traffic estimates under the different production scenarios and routes. As presented in this table, the maximum volume of rail traffic that would result from the proposed rail line—including mining potentially induced by the proposed rail line—would range from 7.4 trains per day for any build alternative under the low coal production scenario to 26.7 trains per day for the southern alternatives under the high coal production scenario across all three coal export terminal scenarios.

Table 2-5. Coal Production and Train Traffic Estimates

Predicted Coal Shipments	Alternatives	Marketable Coal Production	Maximum Number of Trains per Day			
			2018	2023	2030	2037
Low	Northern alternatives[a]	20 million tons/year	7.4	7.4	7.4	7.4
Low	Southern alternatives[b]	20 million tons/year	7.4	7.4	7.4	7.4
Medium	Northern alternatives	32 million tons/year	7.4	11.9	11.9	11.9
Medium	Southern alternatives	32 million tons/year	7.4	11.9	11.9	10.6
High	Northern alternatives	50 million tons/year	12.6	18.6	18.6	18.6
High	Southern alternatives	72 million tons/year	12.6	18.6	26.7	26.7

[a] Northern alternatives include Tongue River Alternatives, Tongue River Road Alternatives, Colstrip Alternatives, and Moon Creek Alternatives
[b] Southern alternatives include the Decker Alternatives

Production of Tongue River coal would cause total U.S. coal production to increase, on average, by 1.4 million tons per year from 2018 to 2037. If Pacific Northwest coal export capacity does not expand, OEA concluded that, because of lower production and transportation costs, coal from the Tongue River region would primarily displace other Powder River Basin coal destined for domestic markets in the Upper Midwest. While rail traffic would increase locally near the mines, rail traffic on BNSF's downline routes would not change considerably. The incremental addition of train traffic from the proposed rail line would be small when compared to the total train traffic along the BNSF main line, especially considering that not all of the additional train traffic would be traveling the same downline route.

OEA considers an expansion in Pacific Northwest coal export capacity as reasonably foreseeable. On an annual basis, an annual export of from 0 to 53 percent of coal produced from the proposed Otter Creek Mine and potentially induced Poker Jim Creek–O'Dell Creek and Canyon Creek Mines (i.e., without any averaging) would be expected. Exports of more than 0 percent would occur under six of the 21 primary sensitivity scenarios with no exports occurring under 15 of the primary sensitivity scenarios. The maximum export of 53 percent would occur if the southern alternatives are developed with high coal production rates and high terminal capacity growth. The portion exported would be low across all scenarios because other Powder River Basin coals with higher heat content would be more competitive for export.

To evaluate the impact of these terminal expansions, OEA modeled coal train traffic that could occur under the No-Action Alternative and modeled the downline transportation

impacts from such export expansion in the absence of the proposed rail line. That analysis projects that, as the export terminal capacity is fully used, the same amount of rail traffic would flow from the Powder River Basin to the Pacific Northwest, with or without the proposed rail line.

A detailed analysis of rail traffic along 53 eastbound and westbound segments is included in Appendix C, *Coal Production and Markets*, Chapter 9, *Rail Transportation Routes*.

2.4 Comparison of Alternatives

The Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) implementing regulations require that the environmental impacts of the reasonable and feasible alternatives be considered. To define the issues and provide a clear basis for choice among options (40 C.F.R. §1502.14), this section compares the environmental impacts of the build alternatives based on information and analyses presented in Chapters 3 through 19 of this Draft EIS. Table 2.6 provides a summary of the impacts from each build alternative arranged by resource. This table allows the reader to compare, across all alternatives, the impacts on a single resource. In the paragraphs that follow, the important impacts of each build alternative, whether greatest or least, are summarized.

Tongue River Alternative. This build alternative would require 3,783 acres of right-of-way and 83.7 miles of rail line. It would affect the highest nighttime bird *richness* (31), the most wintering bald eagle roosts (18), and the most wintering bald eagles (23) within 1 mile of the right-of-way. All four federally listed species would be present along this build alternative. This build alternative would displace one residence.

Tongue River East Alternative. This build alternative would require 3,803 acres of right-of-way and would be the longest build alternative (86.3 miles). It would affect the least antelope winter densities (0.53). All four federally listed species in the study area would be present along this build alternative. This build alternative would displace one residence.

Colstrip Alternative. This build alternative would require the fewest acres of right-of-way (2,040) and would be the shortest (42.3 miles). It would affect the fewest acres of vegetation (1,899), the fewest acres of wildlife habitat (2,079), the fewest acres of antelope habitat (211), the fewest acres of greater sage-grouse habitat (760), and the least special-status daytime bird *abundance* (0.06). Three of the four federally listed species in the study area would not be present along this build alternative. This build alternative would cross the fewest surface waters (62), require the fewest water culverts (54), and require the least amount of water for construction (297 million gallons). It would affect the fewest acres of wetlands (8.1), the fewest acres of grazing land in the right-of-way (1,670), the fewest acres of severed land in the right-of-way (147), and it would not affect any acres of Montana Department of Natural Resources and Conservation (DNRC)-leased land in the right-of-way. This build alternative would produce the fewest construction jobs (320) and be the least

expensive to build ($388 million). It would adversely affect the most noise receptors during operation (one for the new line and 34 for the Colstrip Subdivision under the low coal production scenario; five for the new line and 89 for the Colstrip Subdivision under the high coal production scenario in 2030). This build alternative would displace one residence.

Colstrip East Alternative. This build alternative would require 2,094 acres of right-of-way and 45.4 miles of rail line. It would affect the fewest acres of mule deer habitat (805), the fewest acres of white-tailed deer habitat (919), the least mule deer winter densities (0.63), the least white-tailed deer winter densities (0.12), the fewest raptor nests within 2 miles of the right-of-way (16), the least daytime bird richness (40), the least daytime bird abundance (9.37), the least nighttime bird richness (17), and the least reptile and amphibian richness (5). It would not affect any bald eagle roosts or bald eagles within 1 mile of the right-of-way. It would affect the highest special-status nighttime bird species abundance (0.33). Three of the four federally listed species in the study area would not be present along this build alternative. This build alternative would require the fewest water drainage structures (26). It would affect the fewest acres of private land in the right-of-way (1,870). This build alternative would have the longest grade-crossing delay per 24-hour period (20.30 minutes including the existing crossing along the Colstrip Subdivision). This build alternative would not adversely affect any noise receptors along the new line but would adversely affect 34 to 84 on the existing Colstrip Subdivision depending on the coal production scenario. This build alternative would displace one residence.

Tongue River Road Alternative. This build alternative would require the most right-of-way acreage (4,234) and would require 83.7 miles of rail line. It would affect the most acres of wildlife habitat (4,263), the most acres of mule deer habitat (3,150), the most acres of white-tailed deer habitat (4,081), and the greatest daytime bird richness (82). However, it would affect the least nighttime bird abundance (3.06). All four federally listed species in the study area would be present along this build alternative. It would require the most water wells in the right-of-way (10) and would affect the most acres of Natural Resources Conservation Service (NRCS) floodplains (113). This build alternative would affect the most acres likely to have archaeological sites (2,532), the most acres of private land in the right-of-way (3,680), the most acres of grazing land in the right-of-way (3,807), and the most private properties in the right-of-way (49). This build alternative would result in the greatest loss of farm output ($359,336). It would adversely affect from one to five noise receptors, depending upon the coal production scenario. This build alternative would displace one residence.

Tongue River Road East Alternative. This build alternative would require 4,218 acres of right-of-way and 85.9 miles of rail line. It would affect the most acres of vegetation (4,111), the most acres of antelope habitat (555), the greatest white-tailed deer winter densities (1.08), and the greatest daytime special-status species bird abundance (0.21). All four federally listed species in the study area would be present along this build alternative. It would cross the most fish-bearing streams (6), would require the most bridges (8), would require the most drainage structures (52), would cross the most surface water bodies (189), and would affect

the most acres of wetlands (33.3) and special farmland in the right-of-way (1,189). This build alternative would adversely affect up to one noise receptor depending on the coal production scenario. It would produce the most construction jobs (720) and would be the most expensive to build ($874 million). This build alternative would displace one residence.

Moon Creek Alternative. This build alternative would require 4,026 acres of right-of-way and 82.1 miles of rail line. It would affect the most raptor nests within 2 miles of the right-of-way (57), the most miles of track within 985 feet of fish-bearing streams (17.6). Two of the four federally listed species in the study area would not be present along this build alternative. Additionally, this build alternative would displace two residences and cross five transmission lines and pipelines. It would adversely affect from one to five noise receptors depending on the coal production scenario.

Moon Creek East Alternative. This build alternative would require 4,047 acres of right-of-way and 84.7 miles of rail line. It would affect the least nighttime special-status species bird abundance (0.08). Two of the four federally listed species in the study area would not be present along this build alternative. This build alternative would affect the most acres of greater sage-grouse habitat (2,600) and would require the most water for construction (783 million gallons). It would affect the most acres of DNRC-leased land in the right-of-way (259), would cross five transmission lines and pipelines, and would displace two residences. This build alternative would adversely affect one noise receptor, regardless of coal production scenario.

Decker Alternative. This build alternative would require 2,826 acres of right-of-way and 51.1 miles of rail line. Three of the four federally listed species in the study area would not be present along this build alternative. This build alternative would affect the fewest acres of special farmland in the right-of-way (369). It would adversely affect one noise receptor.

Decker East Alternative. This build alternative would require 2,695 acres of right-of-way and 49.6 miles of rail line. It would affect the greatest antelope winter densities (0.87) and the fewest miles of track within 985 feet of fish-bearing streams (0.9). Three of the four federally listed species in the study area would not be present along this build alternative. This build alternative would have the fewest acres of NRCS floodplains (9), the fewest acres of areas highly likely to have archaeological sites (1,097), the least loss of farm output ($65,617), the fewest private properties in the right-of-way (20), and the most acres of severed land in the right-of-way (3,390). This build alternative would not adversely affect any noise receptors.

No-Action Alternative. Under this alternative, the Board would not grant TRRC a license to construct and operate a new common carrier rail line and no impacts would result from this project.

Table 2-6. Summary of Impacts

Resource and Impact	Build Alternative									
	Tongue River	Tongue River East	Colstrip	Colstrip East	Tongue River Road	Tongue River Road East	Moon Creek	Moon Creek East	Decker	Decker East
Right-of-Way Acreage	3,783	3,803	2,040	2,094	4,234	4,218	4,026	4,047	2,826	2,695
Total Miles	83.7	86.3	42.3	45.4	83.7	85.9	82.1	84.7	51.1	49.6
Transportation										
Rail Operations and Rail Safety										
Train accidents per year (high production scenario)	2.1	2.2	1.8	1.9	2.1	2.2	2.1	2.2	1.1	1.1
Impact conclusion: Operation would result in an increase in accidents and a minor adverse impact.										
Grade-Crossing Delay										
Number of new and existing grade crossings	4	3	9	8	5	4	4	3	3	3
Delay per 24-hour period (minutes) (high production scenario)	3.45	3.78	18.26	20.30	5.74	6.56	3.45	3.78	19.80	16.08
Impact conclusion: Operation would result in negligible impacts.										
Grade-Crossing Safety										
Average predicted intervals between accidents, new crossings (years) (high production scenario)	58	56	52	49	51	48	49	56	26	28
Impact conclusion: Construction and operation would result in a minor adverse impact except at the crossing of Highway 314, (Decker Alternatives), which would be a moderate adverse impact.										
Navigation										
Permanent impacts?	No	No	No	No	No	No	No	No	No	No
Impact conclusion: Construction and operation would result in negligible impacts.										

Resource and Impact		Build Alternative									
		Tongue River	Tongue River East	Colstrip	Colstrip East	Tongue River Road	Tongue River Road East	Moon Creek	Moon Creek East	Decker	Decker East
Air Quality											
Exceedance of NAAQS or Montana AAQS		No	No	No	No	No	No	No	No	No	No
Impact conclusion: Construction and operation would result in a negligible impact for all air quality standards.											
Air Quality notes: NAAQS = National Ambient Air Quality Standards; Montana AAQS = Montana Ambient Air Quality Standards											
Greenhouse Gases and Climate Change											
Greenhouse Gases[a]											
Direct emissions	Railroad construction[a] ($MMTCO_2e$)	1.2									1.1
	Net land use change releases from railroad construction ($MMTCO_2e$)[a]	0.3 – 0.5									0.2 – 0.4
	Operation of rail line segment, 2018-2037[a], ($MMTCO_2e$)	0.9 – 2.0									0.3 – 1.4
Total direct emissions ($MMTCO_2e$)		2.4 – 3.7									1.6 – 2.9
Net change in indirect life-cycle emissions, 2018-2037 [a], ($MMTCO_2e$)		-1.7 – 81									8.6 – 75
Impact conclusion: Direct GHG emissions from the proposed rail line would be negligible. Net annual life-cycle emissions would range from a negligible positive impact to a minor adverse impact.											
Greenhouse Gas notes: [a] For purposes of modeling accumulated net greenhouse gases, the Tongue River Alternative and Decker East Alternative were selected as proxies representative of the northern and southern alternatives, respectively $MMTCO_2e$ = million metric tons of carbon dioxide equivalent											
Climate Change											
All build alternatives would have a low susceptibility to flooding, soil erosion, and increased wildfires caused by climate change.											
Impact conclusion: Adverse impacts both on the proposed rail line and on affected resources would range from minor to moderate.											

Resource and Impact	Build Alternative									
	Tongue River	Tongue River East	Colstrip	Colstrip East	Tongue River Road	Tongue River Road East	Moon Creek	Moon Creek East	Decker	Decker East
Coal Dust										
Coal dust from trains on any build alternative would not harm human health or the environment.										
Impact conclusion: Operation would result in a negligible impact with minor nuisance impacts.										
Noise and Vibration										
Number of receptors adversely affected by construction	0	1[a]	0	1[a]	0	1[a]	0	1[a]	0	0
Number of receptors adversely affected by operation (low production)	1	0	1 + 34[b]	0 + 34[b]	1	0	1	0	0	0
Number of receptors adversely affected by operation (medium production)	1	0	1 + 65[b]	0 + 63[b]	2	1	1	0	0	0
Number of receptors adversely affected by operation (high production)	5	1	5 + 89[b]	0 + 84[b]	5	1	5	1	1	0
Impact conclusion: Construction would result in moderately adverse impacts at one location. Operation would result in adverse noise impacts.										
Noise notes: [a] Assumes pile-driving occurs at night [b] Larger number are receptors on the Colstrip Subdivision										
Biological Resources										
Vegetation										
Total acres affected	3,700	3,744	1,899	1,978	4,100	4,111	3,953	3,998	2,753	2,634
High fire risk area	98	0	98	0	98	0	98	0	0	0
Impact conclusion: Construction and operation would result in minor adverse impacts on vegetation populations and minor adverse impacts on wildfire risk with areas of moderately adverse impacts along the northern alternatives.										

Resource and Impact	Build Alternative									
	Tongue River	Tongue River East	Colstrip	Colstrip East	Tongue River Road	Tongue River Road East	Moon Creek	Moon Creek East	Decker	Decker East
Wildlife										
Total wildlife habitat affected (acres)[a]	3,813	3,824	2,079	2,122	4,263	4,238	4,061	4,072	2,842	2,711
Mule deer habitat (acres)[a]	1,270	936	1,138	805	3,150	2,816	1,896	1,563	1,476	1,483
White-tailed deer habitat (acres)[a]	3,813	3,344	1,356	919	4,081	3,576	3,122	2,653	2,617	2,463
Antelope habitat (acres)[a]	224	244	211	231	535	555	224	244	328	263
Mule deer winter densities	1.17	1.19	0.67	0.63	1.35	1.35	1.22	1.25	0.97	1.00
White-tailed deer winter densities	1.02	1.03	0.13	0.12	1.07	1.08	0.83	0.84	0.58	0.60
Antelope winter densities	0.54	0.53	0.66	0.62	0.73	0.72	0.59	0.57	0.85	0.87
Raptor nest in right-of-way	1	1	0	0	0	0	1	1	1	1
Raptor nests within 2 miles	49	48	17	16	53	52	57	56	42	41
Active grouse lek within 4 miles	11	11	19	19	13	13	9	9	6	6
Peak male count in active lek	51	51	95	95	52	52	38	38	20	20
Daytime bird richness[b]	79	74	51	40	82	77	77	72	61	53
Daytime bird abundance[c]	11.72	10.26	13.18	9.37	12.01	10.28	11.40	9.74	11.63	10.00
Nighttime bird richness[b]	31	23	25	17	28	20	29	21	27	27
Nighttime bird abundance[c]	3.60	4.07	4.39	7.58	3.06	3.21	3.15	3.25	3.43	3.88
Reptile and amphibian richness	9	9	6	5	7	7	10	10	6	6
Impact conclusion: Construction and operation would result in some minor adverse impacts.										

Wildlife notes:

[a] Impacts include road relocations unless otherwise specified

[b] Total number of species recorded during point count surveys

[c] Total number of birds divided by the number of times surveyed, which varied according to alternative length and land access permission

Resource and Impact	Build Alternative									
	Tongue River	Tongue River East	Colstrip	Colstrip East	Tongue River Road	Tongue River Road East	Moon Creek	Moon Creek East	Decker	Decker East
Fish										
Number of fish-bearing streams crossed	2	3	3	4	5	6	4	5	1	1
Track within 985 of fish-bearing stream (miles)	12.6	6.1	8.4	2.6	13.5	7.2	17.6	11.1	1.7	0.9
Impact conclusion: Construction and operation would result in some minor adverse impacts.										
Special-Status Species										
Greater Sage-Grouse										
Habitat (acres)	1,656	1,871	760	974	2,169	2,384	2,386	2,600	1,458	1,626
Leks within 4 miles of right-of-way	12	13	4	5	12	13	10	11	4	4
Active leks within 4 miles	1	1	0	0	2	2	2	2	0	0
Prairie Dogs										
Colonies in right-of-way	10	10	1	1	5	5	11	11	1	2
Colonies > 80 acres in right-of-way	1	1	0	0	3	3	0	0	0	0
Colonies within 0.5 mile	26	26	2	2	16	16	23	23	3	3
Habitat in right-of-way (acres)	51	51	1.5	1.5	50	50	45	45	1.5	1.6
Special-Status Raptors										
Nests in right-of-way	0	1	0	0	0	0	0	1	0	0
Nests within 2 miles of right-of-way	17	17	2	2	17	17	13	13	7	7
Wintering Bald Eagles										
Roosts within 1 mile of right-of-way	18	16	3	0	16	13	13	11	9	7
Concentration area within 1 mile	0	0	0	0	0	0	0	0	1	1
Species count within 1 mile	23	21	3	0	20	17	16	14	16	14

Resource and Impact	Build Alternative									
	Tongue River	Tongue River East	Colstrip	Colstrip East	Tongue River Road	Tongue River Road East	Moon Creek	Moon Creek East	Decker	Decker East
Special-Status Birds										
Daytime bird richness [b]	4	4	1	1	6	6	4	4	2	2
Daytime bird abundance [c]	0.17	0.19	0.06	0.11	0.17	0.21	0.11	0.13	0.13	0.15
Nighttime bird richness [b]	5	3	4	2	4	2	4	2	3	3
Nighttime bird abundance [c]	0.12	0.11	0.19	0.33	0.11	0.10	0.10	0.08	0.12	0.14
Special-Status Vegetation										
Number of species with suitable habitat	8	8	7	7	7	7	7	7	7	7
Special-Status Fish										
Number of fish species potentially affected	6	6	1	1	6	6	1	1	1	1
Federally Listed Species Conclusions [d]										
Pallid sturgeon	NE	NE	NP	NP	NE	NE	NP	NP	NP	NP
Whooping crane	NLAE	NLAE	NP	NP	NLAE	NLAE	NLAE	NLAE	NP	NP
Interior least tern	NLAE	NLAE	NLAE	NLAE	NLAE	NLAE	NLAE	NLAE	NLAE	NLAE
Black-footed ferret	NLAE	NLAE	NP	NP	NLAE	NLAE	NP	NP	NP	NP
Impact conclusion: Construction and operation would result in some minor adverse impacts.										

Biological Resources notes:

[a] Impacts include road relocations unless otherwise specified

[b] Total number of species recorded during point count surveys

[c] Total number of birds divided by the number of times surveyed, which varied according to alternative length and land access permission

[d] NE = no effect; NP = not present; NLAE = not likely to adversely affect

Resource and Impact	Build Alternative									
	Tongue River	Tongue River East	Colstrip	Colstrip East	Tongue River Road	Tongue River Road East	Moon Creek	Moon Creek East	Decker	Decker East
Water Resources										
Surface Water										
Number of surface waters crossed	145	167	62	82	169	189	157	179	113	113
Number of bridges	2	2	4	3	7	7	4	4	1	1
Number of culverts	127	147	54	73	111	130	127	147	100	100
Number of drainage structures	16	18	4	6	51	52	26	28	12	12
Require an in-water support structure?	No	No	No	No	No	No	No	No	Yes	Yes
Impact conclusion: Construction and operation would result in adverse impacts.										
Groundwater										
Water wells in the right-of-way	7	5	9	7	10	8	7	5	1	1
Estimated water use for construction (million gallons)	396	591	297	390	592	677	587	783	726	737
Impact conclusion: Construction and operation would result in negligible impacts.										
Floodplains										
FEMA-designated floodplains (acres)	14	14	13	13	14	14	0	0	0	0
NRCS floodplains (acres)	112	64	88	42	113	65	105	57	13	9
Impact conclusion: Construction and operation would result in negligible impacts.										
Wetlands										
Total wetlands affected (acres)	28.8	32.3	8.1	18.4	31.4	33.3	26.3	29.8	9.5	8.6
Water Resources notes: FEMA = Federal Emergency Management Agency; NRCS = Natural Resources Conservation Service										
Impact conclusion: Construction would result in adverse impacts.										

Resource and Impact	Build Alternative									
	Tongue River	Tongue River East	Colstrip	Colstrip East	Tongue River Road	Tongue River Road East	Moon Creek	Moon Creek East	Decker	Decker East
Visual Resources										
All build alternatives would result in similar types of visual impacts and all would affect sensitive viewers. The longer build alternatives would have more impacts; the shorter would have fewer impacts.										
Impact conclusion: Construction would result in minor to moderate adverse impacts.										
Cultural and Historical Resources										
Areas highly likely to have archaeological sites in the right-of-way (acres)	2,164	2,220	1,028	1,106	2,532	2,547	2,366	2,422	1,150	1,097
Impact conclusion: Construction would result in moderate adverse impacts.										
Land Resources										
Land Use										
Private land in right-of-way (acres)	2,969	2,856	1,949	1,870	3,680	3,582	3,177	3,065	2,237	2,026
Grazing land in right-of-way (acres)	3,443	3,477	1,670	1,767	3,807	3,805	3,575	3,610	2,170	2,011
Severed land in right-of-way (acres)	1,147	2,719	147	1,539	1,120	1,559	1,115	2,687	2,695	3,390
Special farmland in right-of-way (acres)	1,026	1,062	480	503	1,175	1,189	1,026	1,062	369	381
Conservation easement in right-of-way (acres)	422	422	0	0	2	2	422	422	0	0
DNRC-leased land in right-of-way (acres)	84	137	0	53	57	110	206	259	86	86
Private properties in right-of-way	42	32	36	25	49	39	45	35	21	20
Residences in right-of-way	1	1	1	1	1	1	2	2	0	0
Structures in right-of-way	5	19	5	19	5	19	13	27	0	0
Impact conclusion: Construction would result in moderate to highly adverse impacts.										

Resource and Impact	Build Alternative									
	Tongue River	Tongue River East	Colstrip	Colstrip East	Tongue River Road	Tongue River Road East	Moon Creek	Moon Creek East	Decker	Decker East
Recreation										
Number of affected recreational resources	6	6	2	2	6	6	4	4	4	4
Block Management Areas (acres)	1,177	1,177	273	302	349	349	1,122	1,122	0	0
Tongue River Ranch (acres)	229	229	0	0	0	0	229	229	0	0
Pumpkin Creek Ranch (acres)	0	0	0	0	53	53	0	0	0	0
Impact conclusion: Construction and operation would result in minor to moderate adverse impacts.										
Section 4(f) Resources										
Area of impact on Section 4(f) resource (Spotted Eagle Rec Area) (acres)	11	11	0	0	11	11	0	0	0	0
Hazardous Waste Sites										
Proximate to a hazardous waste site	No	No	No	No	No	No	No	No	No	No
Impact conclusion: Construction and operation would result in negligible impacts.										
Land Resources notes: DNRC = Montana Department of Natural Resources and Conservation										
Geology and Soils										
Slopes steeper than 5% (percent of total)	37%	38%	37%	40%	35%	37%	35%	37%	50%	50%
Average earth moved per mile of track (million cubic yards)	0.58	0.92	0.82	1.44	0.88	1.21	0.84	1.18	1.61	1.92
Suitability of majority soil type for construction	Excellent	Excellent	Fair to poor	Fair to poor	Excellent	Excellent	Excellent	Excellent	Fair to poor	Fair to poor
Cut requirements (million cubic yards)	25.30	41.59	18.20	34.48	38.80	55.09	36.20	52.49	42.77	49.76
High sensitivity for paleo resources	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No
Impact conclusion: Construction and operation would result in negligible to minor adverse impacts.										

Resource and Impact	Build Alternative									
	Tongue River	Tongue River East	Colstrip	Colstrip East	Tongue River Road	Tongue River Road East	Moon Creek	Moon Creek East	Decker	Decker East
Energy Resources										
Diesel fuel for construction (million gallons)	12.41	18.47	10.01	13.56	18.37	22.00	18.13	24.20	21.46	21.47
Diesel fuel for operation, high production scenario (million gallons/year)	7.11	7.35	6.02	6.31	7.11	7.31	6.96	7.20	5.47	5.43
Transmission lines and pipelines crossed	4	4	1	1	3	3	5	5	1	1
Impact conclusion: Construction and operation would result in negligible impacts.										
Socioeconomics										
Loss of farm output in right-of-way	$267,430	$162,350	$188,960	$67,849	$359,336	$253,092	$281,299	$176,187	$70,824	$65,617
Direct employment, total construction period	496	602	320	429	612	720	596	703	604	578
Total construction costs (million $)	$602	$731	$388	$520	$743	$874	$724	$853	$733	$702
Impact conclusion: Construction and operation would result in both beneficial and moderately adverse impacts.										
Environmental Justice										
High and adverse impact on minority population?	Yes[a]	No	Yes[b]	Yes[b]	Yes[a]	No	Yes[a]	No	Yes[a]	No
High and adverse impact on low-income population? [a]	No	No	Yes[b]	Yes[b]	No	No	No	No	No	No
Environmental Justice notes:										
[a] Noise impact under the high rail traffic scenario										
[b] Noise impact under low, medium, and high coal production scenarios, with associated increases in rail traffic										

Resource and Impact	Build Alternative									
	Tongue River	Tongue River East	Colstrip	Colstrip East	Tongue River Road	Tongue River Road East	Moon Creek	Moon Creek East	Decker	Decker East
Downline Impacts										
Transportation										
Rail Operations and Rail Safety										
Little overall change in predicted accident frequency, although the locations of predicted accidents would be redistributed. Maximum increase in accident frequency would be 1.7 accidents, Segment 17 (Glendive, MT to Mandan, ND), northern alternative, high productions scenario. This increase in accidents would have a minor adverse impact.										
Grade-Crossing Delay										
Maximum increase in average delay time per crossing would be 7.44 seconds per vehicle, which is a negligible impact. Segment 6, southern alternative, high production scenario would result in a minor adverse impact.										
Grade-Crossing Safety										
Largest reduction in average predicted accident interval would be 30 years (from 123 years to 93 years between crossing accidents), Segment 6, (Spring Creek, MT to Dutch, WY) southern alternative, high production scenario. This would result in minor adverse impacts.										
Air Quality										
Locomotive exhaust emissions increases would not exceed conformity thresholds for carbon monoxide or nitrogen oxide for 15 segments. These impacts would be negligible.										
Emissions from motor vehicles delayed at crossings would be far below general conformity thresholds and these impacts would be negligible.										
Coal dust emissions would not violate ambient air quality standards. The impacts of coal dust would be negligible, but could result in minor nuisance impacts.										
Noise and Vibration										
Noise would exceed analysis thresholds on Segment 20 (Fargo, ND to Willmar, MN), northern alternatives, high production scenario, adversely affecting 2,934 receptors (1,205 for the No-Action Alternative).										
Environmental Justice										
Of the 2,934 noise-sensitive receptors in Segment 20 (Fargo, ND to Willmar, MN), 28% are in minority populations and 44% are in low-income populations.										